Pinal County Air Quality Control District

2020 Ambient Monitoring Network Plan and 2019 Data Summary

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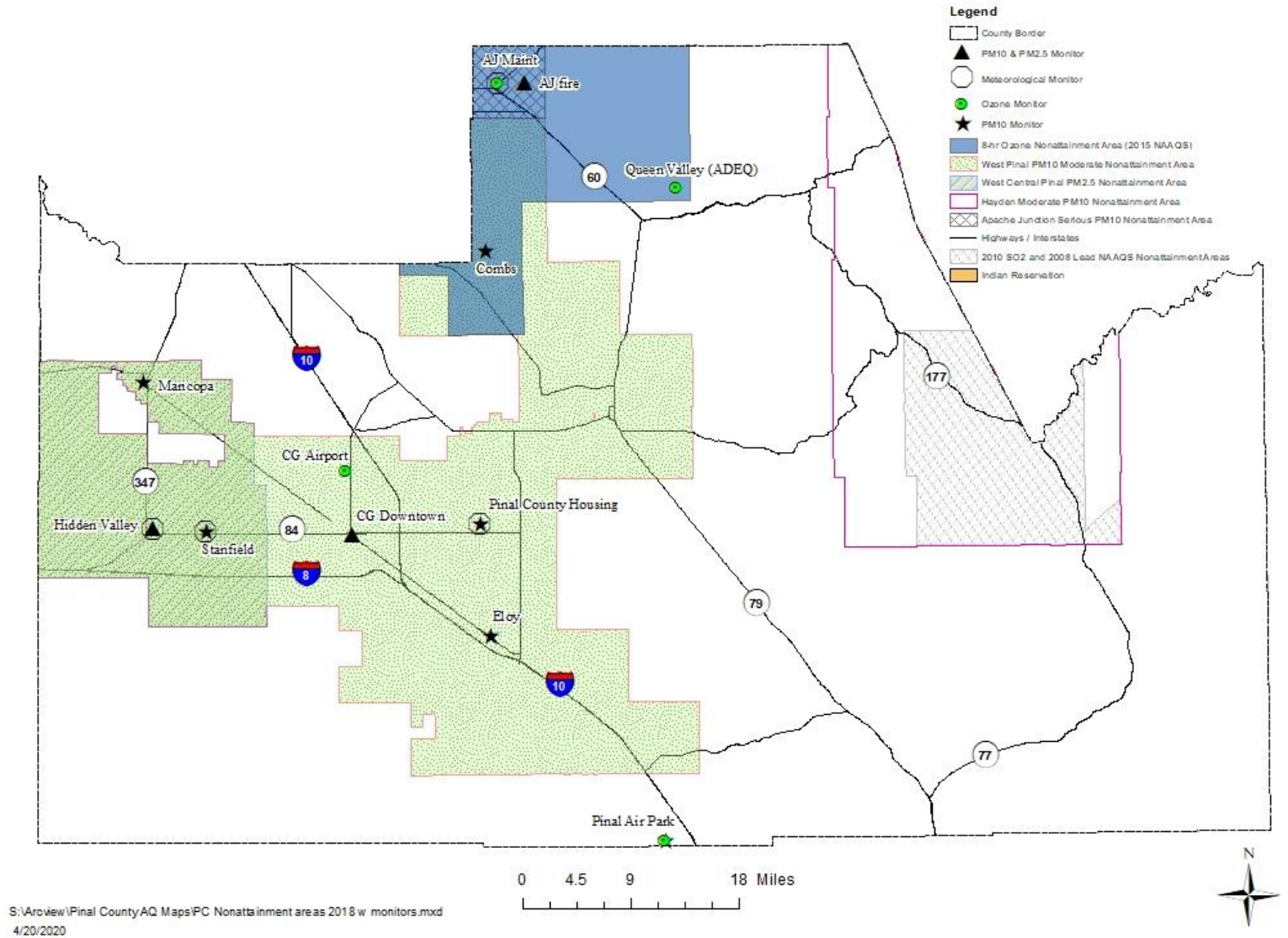
Pinal County Air Quality Control District Monitoring Network and Nonattainment Areas



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Appendices

Executive Summary

The Pinal County Air Quality Control District (PCAQCD) has prepared this annual air quality monitoring network plan to summarize monitoring changes implemented during 2019 and proposed changes for 2020. This document also reports the 2019 air quality monitoring data in a summary format.

The period from 2016 through 2019 included extensive replacement of equipment throughout the monitoring network. In May of 2015, and continuing into 2019, PCAQCD requested and received 105 grant funds from EPA to help update the monitoring network as some of the older continuous PM_{10} instruments were no longer going to be supported by the manufacturers. PCAQCD began purchasing and installing the new equipment in 2017. Installation of the new equipment from the last grant cycle started in early 2020 and will most likely continue into 2021. To date PCAQCD has upgraded seven continuous PM_{10} monitors with plans to upgrade an additional two monitors. In addition to the PM_{10} instruments, PCAQCD also received funding to upgrade the communications at the sites, upgrade the meteorological equipment, upgrade the ozone analyzers and make improvements to the County web site which will allow for better access to data and information by the public. All three ozone sites received new analyzers in early 2019 and the communications, including new data loggers for each site, have been updated as each site gets new equipment. Additionally, four sonic meteorological systems and an upgrade to the Airvision Software have been purchased and installed. The new website went live in 2017 that will enhance the County website and make data more accessible to the public. Sections 5.1 and 5.2 provide more details on the equipment upgrades and schedule.

2020 will see a focus on the ozone sites. The biggest changes will be to the verification methodology. PCAQCD has begun testing a through-the-inlet verification method. In addition, the verification points have been changed to reflect a range of values more realistically seen at the sites. Finally, all ozone sites will have a dedicated transfer standard and zero air generator. This new configuration should reduce any effects on the transfer standard from moving site-to-site. Additional information on the ozone changes can be found in Section 5.3.

Pinal County Public Works Notified PCAQCD in 2018 that they would be closing their yard in Coolidge which houses a PM_{10} monitoring site. PCAQCD evaluated options for the site and after a data assessment following EPA protocols determined that the appropriate solution was to close the site. PCAQCD included a closure request in the 2019 Network Plan following the conditions of 40 CFR Part 58.14(c). The request was granted by EPA in December of 2019 and the site was closed on December 31, 2019.

Also in 2019 EPA conducted a Technical System Audit (TSA) which included a number of findings and recommendations. PCAQCD has begun implementing changes to reflect the findings of the TSA. The modifications to the ozone sites are examples of findings from the TSA. PCAQCD will use the TSA findings to improve the monitoring network as a whole.

Introduction

This document provides two distinct products: 1) a description of the Pinal County Air Quality monitoring system in the form of an Annual Monitoring Network Plan, and 2) a summary of data obtained from the network.

40 Code of Federal Regulations (CFR) Part 58.10 requires an annual monitoring network plan to summarize the air quality surveillance system consisting of State and Local Air Monitoring Stations (SLAMS) and Special Purpose Monitors (SPMs) operated under state and local authority. According to the regulation, the Annual Monitoring Network Plan must be submitted to the Environmental Protection Agency (EPA) Regional Administrator by July 1 each year.

The annual monitoring network plan must identify the purpose of each monitor and provide evidence that both the siting and the operation of each monitor meet the requirements in 40 CFR Part 58 appendices A, C, D, and E below:

- Appendix A – Quality Assurance Requirements for SLAMS, SPMs, and Prevention of Significant Deterioration (PSD) Air Monitoring
- Appendix C – Ambient Air Quality Monitoring Methodology
- Appendix D – Network Design Criteria for Ambient Air Quality Monitoring
- Appendix E – Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring

Pinal County Air Quality operates air quality monitors that record ambient concentrations of several criteria pollutants. Criteria pollutants are those that the EPA has defined as a potential risk to health, and correspondingly defined a National Ambient Air Quality Standard (NAAQS).[1] The standards are intended to protect public health and welfare by setting limits on the allowable concentration of each pollutant in the ambient air.

The criteria pollutants are particulate matter less than or equal to 10 microns in diameter (PM_{10}), particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead (Pb).

Areas in which monitored air quality shows that the NAAQS are violated are defined as nonattainment for the offending pollutant. A nonattainment designation requires an area-specific curative implementation plan, typically including stricter air quality permitting regulations on industrial facilities, mobile source emission controls and additional regulations on development. Generally, areas with monitored air quality that meet the standards are defined as attainment. Areas without sufficient monitoring data may also be defined as unclassifiable. Figure i-1 illustrates the current pollutant-specific nonattainment areas in Pinal County.

This document is arranged with several sections. Each section will address specific requirements of 40 CFR Part 58 or provide summary air quality data. The sections are organized accordingly.

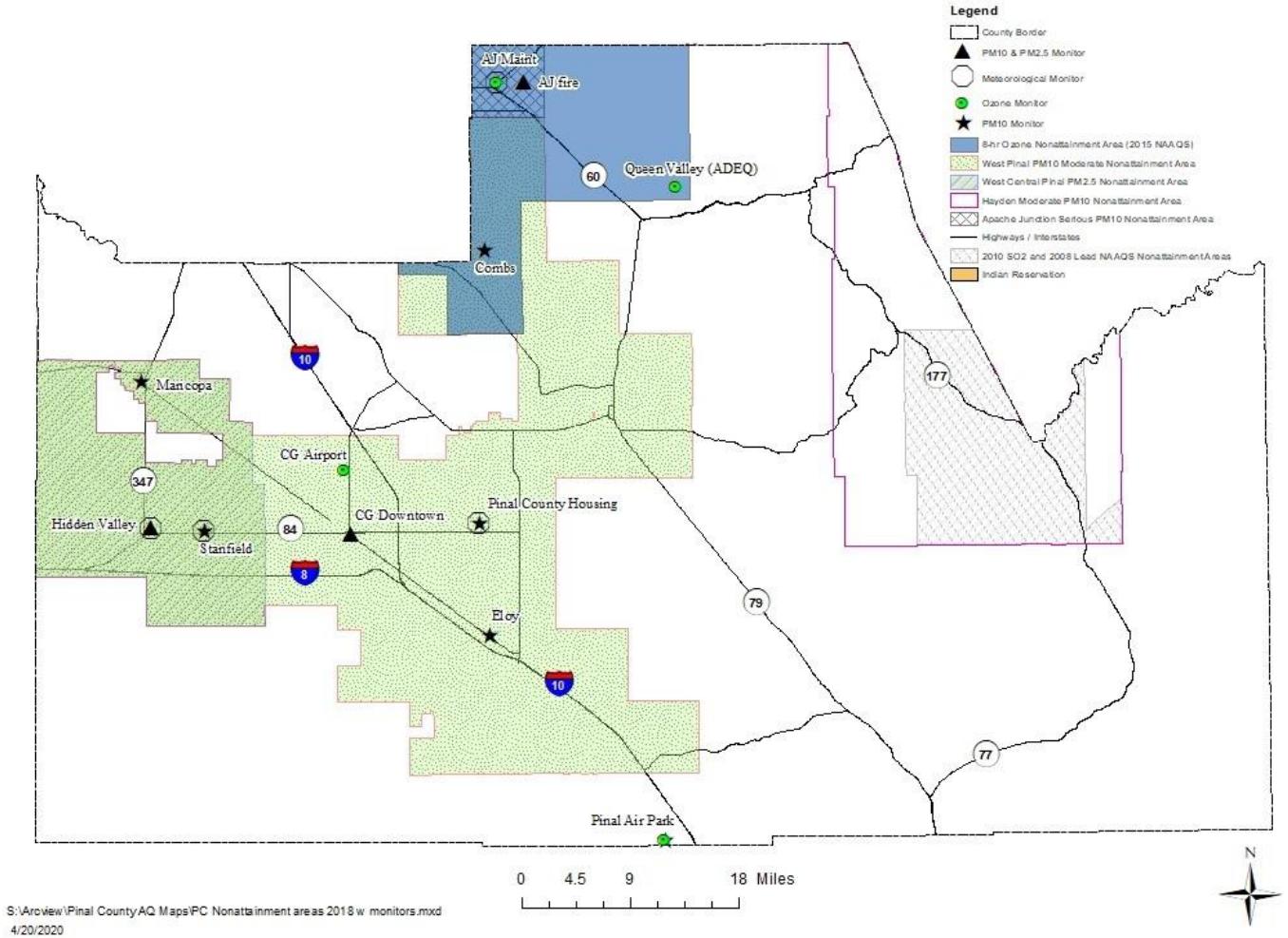
[1] See Clean Air Act ("CAA") §§ 108,109, and 40 CFR §50.1 *et seq.*

Section 1 describes the NAAQS standard for each pollutant monitored by Pinal County Air Quality. Section 2 describes 40 CFR Part 58 defined monitoring objectives, site types and scales of representation. Section 3 provides Pinal County's network design, measures compliance with minimum site requirements, and provides an overview of how the Pinal County Air Quality network achieves precision measurements. Section 4 describes each site in the Pinal County network and evaluates the sites for compliance with siting requirements set forth by EPA. Section 5 describes the proposed changes to the monitoring network.

The appendices of this document present a list of abbreviations used in the document (Appendix A), a picture and summary table for each monitoring site operated by Pinal County Air Quality (Appendix B), a tabular summary of the monitoring data (Appendix C), approval letters for changes made outside of the network plan that were approved by the EPA (appendix D) and a summary of the public comment period and hearing conducted in relation to this document (Appendix E).

Figure i-1

Pinal County Air Quality Control District Monitoring Network and Nonattainment Areas



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1.0 National Ambient Air Quality Standards (NAAQS)

This section provides a brief description of the National Ambient Air Quality Standards (NAAQS). As background, the Clean Air Act (CAA) requires EPA to set NAAQS for six criteria pollutants: ozone, particulate matter, lead, nitrogen dioxide, sulfur dioxide and carbon monoxide. The CAA established two types of NAAQS for these pollutants. Primary standards are set to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are set to protect public welfare, including protection against visibility impairment, or damage to animals, crops, vegetation, and buildings.

Ozone

Ozone (O_3) has been shown to cause various health effects. Symptoms can include chest pain, congestion, coughing, and throat irritation. Ozone exposure can also increase the effects of asthma, bronchitis and emphysema and extended exposure can result in permanent lung damage and reduced lung function.

The 1-hour standard was established in 1971 and set at a level of 0.08 parts per million (ppm). In 1979, the standard was revised to 0.12 ppm and was an exceedance based standard, which required that the number of expected exceedances be less than or equal to 1. An exceedance of the 1-hour ozone standard occurred if an observed 1-hour average was greater than 0.12 ppm. Generally, the number of daily exceedances (only the daily maximum counted as an exceedance) equals the expected exceedance rate. Thus, the standard effectively allowed only one exceedance to be recorded per calendar year.

EPA updated the ozone standard in 1997 and created an 8-hour standard. The 8-hour primary ozone standard was 0.08 ppm. The decision to revise the standard was challenged in court by a number of parties and ultimately reached the U.S. Supreme Court. In 2001, the Supreme Court unanimously upheld the constitutionality of the 1970 CAA provision that authorizes EPA to set NAAQS to protect public health and welfare. EPA proceeded with implementing the 8-hour standard by making nonattainment designations in April 2004 and revoking the 1-hour standard in August 2005.

On March 12, 2008 the 8-hour standard was set to a level of 0.075 ppm. In addition to changing the level of the standard, EPA specified the level of the standard to the third decimal. An area will meet the revised standard if the 3-year average of the annual fourth-highest daily maximum 8-hour average at every ozone monitor is less than or equal to 0.075 ppm. In 2010 EPA agreed to review the 2008 ozone NAAQS but subsequently retracted the proposed revisions and held the standard at the 2008 level.

On October 1, 2015 the EPA finalized the 2015 8-hour ozone NAAQS. The level of the NAAQS was set to 0.070 ppm. In October of 2016 the Governor (through ADEQ) submitted an attainment/nonattainment/unclassifiable recommendations to EPA. This submittal recommended including a portion of Pinal County in the 2015 8-hour ozone nonattainment area. The proposed boundary includes the communities of Apache Junction, Gold Canyon, San Tan Valley, Queen Creek and Queen Valley. EPA finalized the nonattainment designation that included parts of Pinal County on April 30, 2018.

The CAA requires EPA to designate areas as attainment (meeting the standards), nonattainment (not meeting the standards), or unclassifiable (insufficient data to classify) after the Agency sets a new standard, or revises an existing standard.

Table 1-1

National Ambient Air Quality Standards for Ozone			
Primary Standards	**Averaging Time**	**Secondary Standards**	**Averaging Time**
0.070 ppm (2015 std)	8-hour [1]	Same as Primary	Same as Primary
0.075 ppm (2008 std)	8-hour [2]	Same as Primary	Same as Primary
0.08 ppm (1997 std)	8-hour [3]	Same as Primary	Same as Primary
0.12 ppm	1-hour [4] (Applies only in limited areas)	Same as Primary	Same as Primary

1 To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.070 ppm. (effective December 28, 2015)

2 To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)

3 To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

4 The standard was attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1. As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) areas.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter (PM) less than or equal to 10 microns in diameter (PM_{10}) has been shown to cause health effects in the lungs and heart. Health effects can include an increase in asthma symptoms, decreased lung function, irregular heartbeats and heart attacks.

The NAAQS for PM were first established in 1971 and were not significantly revised until 1987, when EPA changed the indicator of the standards to regulate inhalable particles smaller than, or equal to, 10 microns in diameter (that's about 1/4 the size of a single grain of table salt).

In 1997 EPA revised the PM standards, setting separate standards for fine particles smaller than, or equal to, 2.5 microns in diameter ($PM_{2.5}$). The 1997 NAAQS also retained slightly revised standards for PM_{10} which were intended to regulate "inhalable coarse particles" that ranged from 2.5 to 10 microns in diameter. PM_{10} measurements, however, contain both fine and coarse particles.

EPA revised the air quality standards for PM again in 2006. The 2006 standards tightened the 24-hour $PM_{2.5}$ standard from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$, and retained the annual $PM_{2.5}$ standard at 15 $\mu g/m^3$. EPA retained the existing 24-hour PM_{10} standard of 150 $\mu g/m^3$ and revoked the annual PM_{10} standard, because available evidence does not suggest a link between long-term exposure to PM_{10} and health problems.

In December of 2012 EPA again revised the $PM_{2.5}$ standard. The annual $PM_{2.5}$ standard was lowered to 12 µg/m^3. The annual secondary standard was set at 15 µg/m^3, and the 24-hour standard of 35 µg/m^3 remained the same.

The CAA requires EPA to review the latest scientific information and NAAQS every five years. Before new standards are established, policy decisions undergo rigorous review by the scientific community, industry, public interest groups, the general public and the Clean Air Scientific Advisory Committee (CASAC).

Table 1-2

National Ambient Air Quality Standards for Particulate Matter Pollution			
Pollutant	**Primary Standard**	**Averaging Time**	**Secondary Standard**
Particulate Matter (PM_{10})	150 µg/m^3 (1997 std)	24-hour [1]	Same as Primary
Particulate Matter ($PM_{2.5}$)	12 µg/m^3 (2012 std)	Annual [2] (Arithmetic Mean)	15 µg/m^3 (1997 std)
Particulate Matter ($PM_{2.5}$)	35 µg/m^3 (2006 std)	24-hour [3]	Same as Primary

Footnotes:

1 - Not to be exceeded more than once per year on average over 3 years.

2 - To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 12 µg/m^3 (effective March 18, 2013).

3 - To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m^3 (effective December 17, 2006).

PM_{10} Nonattainment Status

On May 22, 2012 the EPA Region IX Administrator signed the West Pinal PM_{10} nonattainment designation. Based on 2009 - 2011 data, a significant portion of western Pinal County was included in this new nonattainment area (Figure 1-1). On May 31, 2012 the designation was officially published in the Federal Register.

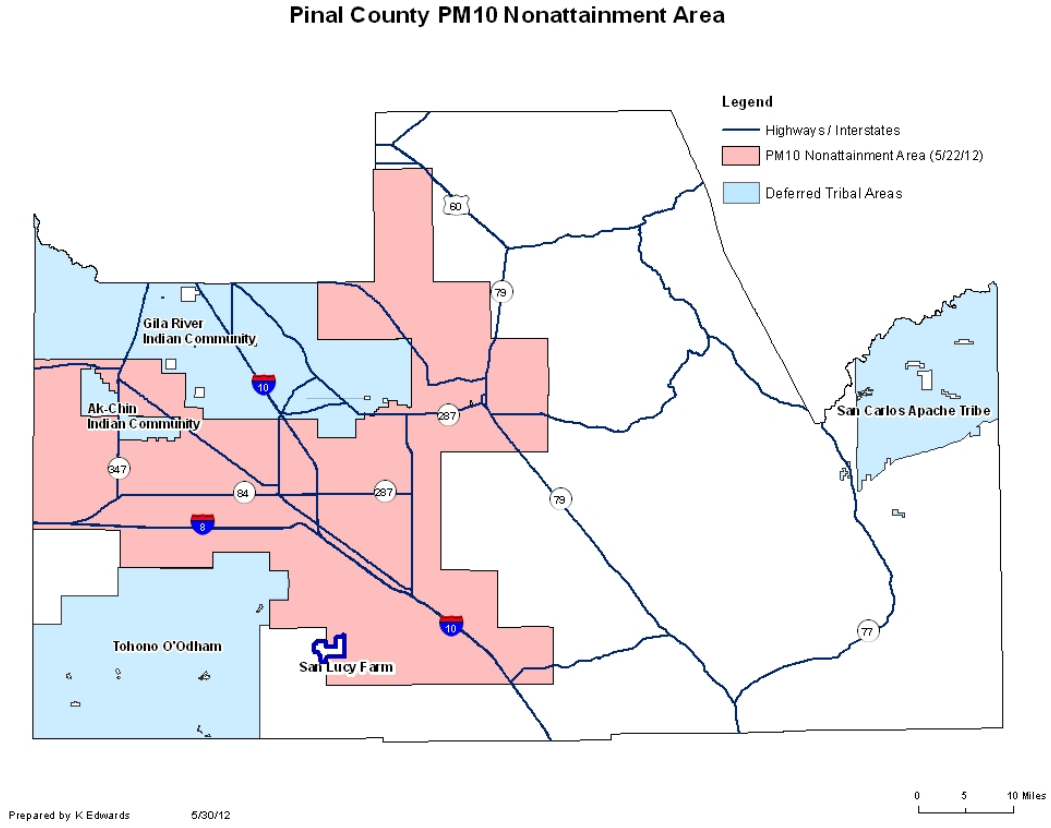
On April 7, 2020, EPA published a Federal Register notice (85FR19409) proposing to redesignate the area from moderate to serious non-attainment based upon data collected during the period from 2016 - 2018. As of the date this document was released, the action has not been finalized. More detail regarding the data for this period is available in Appendix C.

Designations for the Pinal portions of the Gila River Indian Community, the Ak-Chin Indian Community, and the Florence Village and San Lucy Farms areas of the Tohono O'odham Nation were deferred until completion of the formal consultation process. EPA determined that the tribal areas were not contributing to violations of the PM_{10} standard in Pinal County and did not re-designate these areas.

Eastern Pinal County also contains portions of the Hayden PM_{10} nonattainment area. The Arizona Department of Environmental Quality (ADEQ) is responsible for the monitoring

and State Implementation Plan (SIP) for this area, since Hayden is in Gila County and the nonattainment area is related to a source that is regulated by ADEQ.

Figure 1-1



$PM_{2.5}$ Nonattainment Designation

On February 3, 2011, the EPA issued final air quality designations for the 2006 24-hour $PM_{2.5}$ NAAQS for Pinal County, as well as Plumas and Shasta counties in California. The designations became effective March 7, 2011.

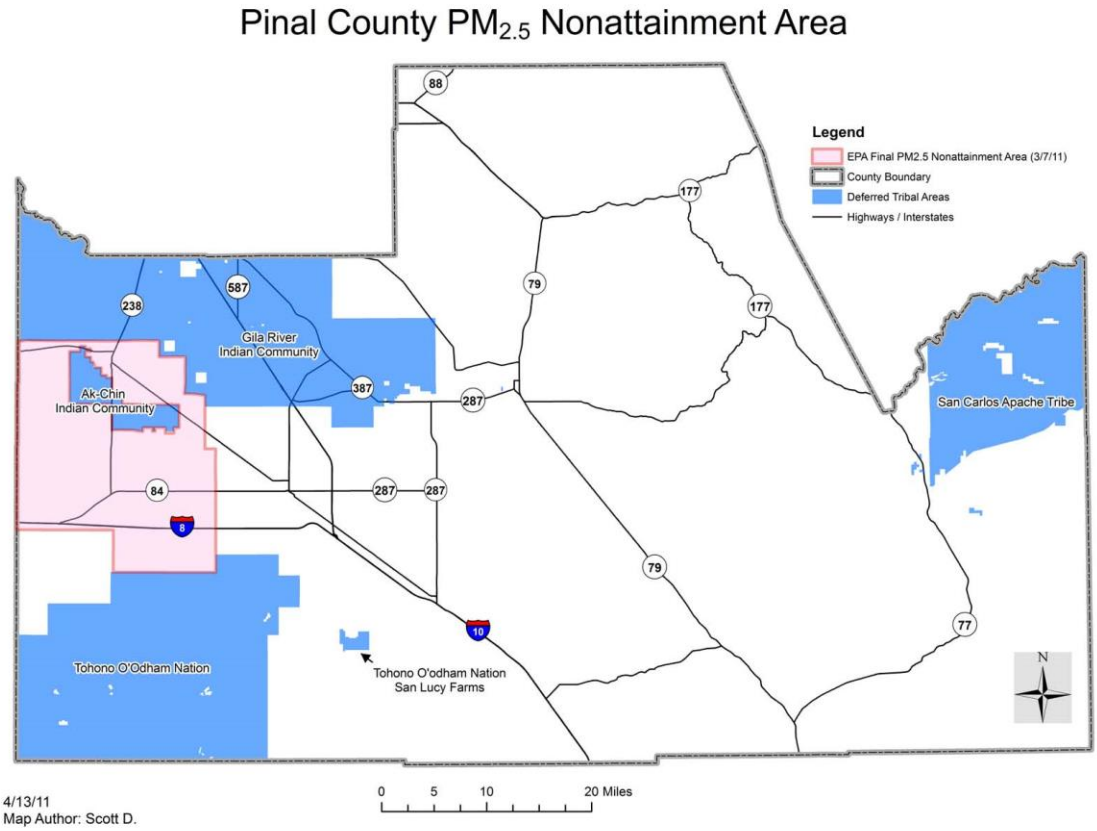
EPA deferred final designations for these areas in November 2009 when the Agency designated all other areas of the country. EPA deferred action on Pinal County to evaluate the reasons for high fine particulate concentrations measured by the violating monitor. The Pinal County nonattainment designation included a portion of the county (Figure 1-2) based upon air quality monitoring data from 2006 - 2008.

On October 4, 2013, the EPA determined that the West Central Pinal County nonattainment area attained the 2006 24-hour fine particle ($PM_{2.5}$) NAAQS (78FR 54394; Effective Date October 4, 2013). EPA's determination was based upon complete, quality assured, and certified ambient air monitoring data from 2010 – 2012, showing that the area had attained the 2006 24-hour $PM_{2.5}$ NAAQS.

On October 3, 2019, the EPA determined that the West Central Pinal County nonattainment area attained the 2006 24-hour fine particle ($PM_{2.5}$) NAAQS (84FR 52766). . EPA's determination was based upon complete, quality assured, and certified ambient air monitoring data from 2015 – 2017, showing that the area had attained the 2006 24-hour $PM_{2.5}$ NAAQS.

Based on EPA's clean data determination, the requirements for this area to submit an attainment demonstration, together with Reasonably Available Control Measures (RACM), a Reasonable Further Progress (RFP) plan, contingency measures, and attainment deadlines were suspended for so long as the area continues to attain the 2006 24-hour $PM_{2.5}$ NAAQS. The clean data determination suspends most of the SIP planning requirements but does not re-designate areas as attainment.

Figure 1-2



Lead

Lead (Pb) is abundant in the environment and has some negative health effects. High levels of lead in the body can cause damage to the immune system, kidneys and nervous system. Studies have also shown that high lead levels can impact the reproductive system and the blood's capacity to carry oxygen.

On October 15, 2008, EPA substantially strengthened the NAAQS for lead. The revised standards are 10 times tighter than the previous standards, set in 1978. EPA revised the level of the primary (health-based) standard from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$ measured as total suspended particles (TSP). The secondary (welfare-based) standard is identical in all respects to the primary standard.

The averaging time and form of the lead standard were also revised. The calculation method for the averaging time was changed to use to a 'rolling' 3-month period with a maximum (not-to-be-exceeded) form, evaluated over a 3 year period. This replaces the previous approach of using calendar quarters. A rolling 3-month average considers each of the 12 3-month periods associated with a given year, not just the four calendar quarters within that year.

See Section 3.8 of the document for additional information on lead monitoring.

Table 1-3

National Ambient Air Quality Standards for Lead		
Primary Standard	**Averaging Time**	**Secondary Standard**
0.15 $\mu g/m^3$ (2008 standard)	Rolling 3-Month Avg.[1]	Same as Primary

1 – Form of the standard requires evaluation of data collected over a 3 year period

Nitrogen Dioxide

Nitrogen dioxide (NO_2) has been shown to have negative impacts on the respiratory system. Short-term exposure can cause irritation to the airway and an increase in asthma symptoms. Long-term exposure can lead to permanent respiratory damage.

On January 22, 2010, EPA strengthened the health-based NAAQS for NO_2. EPA set a new 1-hour NO_2 standard at the level of 100 parts per billion (ppb). In addition to establishing an averaging time and level, EPA also set a new form for the standard. The form for the 1-hour NO_2 standard is the 3-year average of the 98^{th} percentile of the annual distribution of daily maximum 1-hour average concentrations. EPA retained, with no change, the current annual average NO_2 standard of 53 ppb.

To determine compliance with the new standard, EPA established new ambient air monitoring and reporting requirements for NO_2. In urban areas, monitors are required near major roads as well as in other locations where maximum concentrations are expected. Additional monitors are required in large urban areas to measure the highest concentrations of NO_2 that occur more broadly across communities. These changes will not affect the secondary NO_2 standard, set to protect public welfare.

Monitoring guidance provided by EPA targets new monitoring in large population centers and near-roadway measurements. The monitoring requirements are as follows: 1) Core Based Statistical Areas (CBSAs) greater that 500,000 will require 1 monitoring site, 2) population centers greater than 2,500,000 will require 2 sites. Based upon current population Pinal County will not be required to implement NO_2 monitoring, and these sites have been installed in Maricopa County for the CBSA.

Table 1-4

National Ambient Air Quality Standards for Nitrogen Dioxide		
Primary Standard	**Averaging Time**	**Secondary Standard**
100 ppb (2010 std)	1-hour	N/A
53 ppb (1996 std)	Annual	Same as Primary

Carbon Monoxide

Carbon monoxide (CO) reduces the ability of blood to carry oxygen. Short-term effects include chest pain and the inability of the body to respond after exercise or stress. Long-term effects can include permanent damage to organs including the heart and brain. Extreme exposure can even cause death.

On August 31, 2011 EPA finalized a revision to the CO standard that retained the current standards and added minimum monitoring requirements. The primary standards for CO include both 1-hour and 8-hour standards. EPA has not set a secondary standard for CO. The 1-hour CO standard is 35 ppm and the 8-hour is 9 ppm with both not be exceeded more than once per year.

The ambient air monitoring requirements for CO require that one CO monitor be collocated with a near-road NO_2 monitor for any CBSA greater than 1,000,000 people. Based upon current population Pinal County will not be required to implement CO monitoring, and the required site has been installed in Maricopa County.

Table 1-5

National Ambient Air Quality Standards for Carbon Monoxide		
Primary Standard	**Averaging Time**	**Secondary Standard**
35 ppm (2011 std)	1-hour	N/A
9 ppm (2011 std)	8-hour	N/A

Sulfur Dioxide

Sulfur dioxide (SO_2) has been shown to have health effects on the respiratory system. Short-term exposure has been shown to increase the effects of asthma and increase the difficulty of breathing. Long-term exposure can result in permanent damage to the respiratory system as well as exacerbating asthma, bronchitis and heart disease.

On June 22, 2010 EPA finalized a revision to the primary SO_2 standard. The current primary SO_2 standard is 75 ppb averaged over 1-hour. In order to meet the standard the 99^{th} percentile of 1-hour daily maximum concentrations averaged over 3 years must be less than 75 ppb. The secondary SO_2 standard is 0.5 ppm averaged over 3-hours and is not to be exceeded more than once per year.

The primary source of SO_2 in Pinal County is copper mining operations and copper smelters. Since Arizona Revised Statues (ARS) retains the authority to regulate copper smelters at the State level, ADEQ has historically conducted any SO_2 monitoring that has occurred in Pinal County. ADEQ operated an SO_2 monitor in San Manuel, Pinal County, until December of 2007. The San Manuel site was discontinued as proposed in the SIP and ADEQ Network Plan and subsequent attainment finding by EPA for the area.

Table 1-6

National Ambient Air Quality Standards for Sulfur Dioxide			
Primary Standard	**Averaging Time**	**Secondary Standard**	**Averaging Time**
75 ppb	1-hour	0.5 ppm	3-hour

2.0 Monitoring Objectives, Site Types and Spatial Scales

The design of an Ambient Air Quality Monitoring Network should meet the basic monitoring objectives listed in Appendix D of 40 CFR Part 58. These objectives are:

1. Provide air pollution data to the general public in a timely manner. Data can be presented to the public in a number of attractive ways including through air quality maps, newspapers, internet sites, and as part of weather forecasts and public advisories.
2. Support compliance with NAAQS and emissions strategy development. Data from monitors for NAAQS pollutants will be used for comparing an area's air pollution levels against the NAAQS. Data from monitors of various types can be used in the development of attainment and maintenance plans. SLAMS, and especially national core (NCore) station data, will be used to evaluate the regional air quality models used in developing emission strategies, and to track trends in air pollution abatement control measures' impact on improving air quality. In monitoring locations near major air pollution sources, source-oriented monitoring data can provide insight into how well industrial sources are controlling their pollutant emissions.
3. Support for air pollution research studies. Air pollution data from the NCore network can be used to supplement data collected by researchers working on health effects assessments and atmospheric processes, or for monitoring methods development work.

In order to support the air quality management work indicated in the three basic air monitoring objectives, a network must be designed with a variety of types of monitoring sites. Monitoring sites must be capable of informing managers about many things including the peak air pollution levels, typical levels in populated areas, air pollution transported into and outside of a city or region, and air pollution levels near specific sources. To summarize some of these sites, here is a listing of six general site types:

1. Determine the highest concentrations expected to occur in the areas covered by the network.
2. Determine representative concentrations in areas of high population density.
3. Determine the impact on ambient pollution levels of significant sources or source categories.
4. Determine general background concentration levels.
5. Determine the extent of regional pollutant transport among populated areas.
6. Determine the welfare related impacts in more rural and remote areas in support of secondary standards.

A SLAMS network consists of monitoring stations that provide data to meet these monitoring objectives. Monitoring stations generally correspond to a spatial scale identified in 40 CFR Part 58 Appendix D. Spatial scale of representativeness is described in terms of the physical dimension of the air parcel nearest to a monitoring station throughout which actual pollutant concentrations are reasonably similar. Table 2-1 lists these spatial scales.

Table 2-1: Spatial Scales

Spatial Scale	Dimension
Microscale	Several meters up to 100 meters
Middle scale	100 meters up to 0.5 kilometers
Neighborhood Scale	0.5 kilometers to 4.0 kilometers
Urban Scale	4 kilometers to 50 kilometers
Regional Scale	Tens to hundreds of kilometers

40 CFR Part 58 Appendix D also describes the relationship between the site type and the spatial scales that are generally most appropriate for each site type. Table 2-2 summarizes this relationship.

Table 2-2: Site Type and Scales

Site Type	Appropriate Siting Scales
Highest Concentration	Micro, Middle, Neighborhood (Sometimes Urban)
Population	Neighborhood, Urban
Source Impact	Micro, Middle, Neighborhood
General / Background	Neighborhood, Urban, Regional
Regional Transport	Urban / Regional
Welfare-related impact	Urban / Regional

A SPM is a monitor that is included in an agency's monitoring network, but not part of the SLAMS network. SPMs are generally used to monitor specific sources, although any of the above siting scales may be appropriate. In December 2006 the EPA revised 40 CFR 58.20 indicating that where a SPM operates for more than 24 months all data collected may be eligible for comparison to the relevant NAAQS.

40 CFR Part 50 and 53 define Federal Reference Method (FRM) and Federal Equivalent Method (FEM) designations for monitors, which provide precise methodology for quantifying ambient concentrations of air pollutants. FRMs are monitoring methods that are associated with the NAAQS for the pollutant described in the appendices to 40 CFR 50 and determined by EPA to be FRMs. FEMs are alternative monitoring methods that have been designated by EPA as obtaining equivalent results when compared to the FRM, as determined by 40 CFR 53. An additional option for air monitoring agencies is the Approved Regional Method (ARM). This designation requires the applying agency to conduct specific field testing and evaluation demonstrating that the method meets Class III precision and accuracy requirements listed in Subpart C of 40 CFR Part 53. Pinal County Air Quality uses FRMs to collect filter-based $PM_{2.5}$ samples and automated FEMs for continuous PM_{10}, $PM_{2.5}$ and ozone sampling.

Two types of PM_{10} monitors are currently used in the Pinal County monitoring network: an FEM Tapered Element Oscillating Microbalance (TEOM) 1400a made by R&P and an FEM Tapered Element Oscillating Microbalance (TEOM) 1405 made by Thermo Scientific. Both TEOM models measure PM_{10} on a continuous basis. Pinal County is in the process of replacing all R&P TEOMs with Thermo Scientific TEOMs because parts and support for the R&P TEOM will stop by 2020. Section 5 covers this process in more detail.

Two types of $PM_{2.5}$ monitors are currently being used in the Pinal County monitoring network: A FRM filter-based medium volume monitor equipped with the appropriate size fractioning device (Thermo Scientific 2025i) and a FEM Met One BAM 1020 which measures $PM_{2.5}$ on a continuous basis.

A process for relocating violating $PM_{2.5}$ monitors is described at 40 CFR Part 58.10 (c). The rule requires that the annual monitoring network plan must document how States and local agencies provide for the review of changes to a $PM_{2.5}$ monitoring network that impact the location of a violating $PM_{2.5}$ monitor or the creation/change to a community monitoring zone, including a description of the proposed use of spatial averaging for purposes of making comparisons to the annual $PM_{2.5}$ NAAQS as set forth in Appendix N to 40 CFR Part 50. The affected State or local agency must document the process for obtaining public comment and include any comments received through the public notification process within their submitted plan.

Pinal County Air Quality does not intend to establish community monitoring zones as described in the rule or utilize spatial averaging for comparison to the $PM_{2.5}$ annual NAAQS.

3.0 Network Design and Measurement Quality

3.1 Network Design

This section provides a list of monitoring site designations. Table 3-1 identifies Pinal County Air Quality's current SLAMS designations. There are currently no monitors with a SPM designation.

The SIP as it applies to Pinal County does not make any SLAMS designations. In 2000 Pinal County Air Quality compiled its first annual network review which included SLAMS/SPM site designations. The past annual network reviews have been submitted to both ADEQ and EPA for comment.

Table 3-1: Pinal County SLAMS Summary

Site Name	AQS ID	Classification	Site Type	Site Scale	Pollutant
Apache Junction Fire Station	040213002	SLAMS	Population	Neighborhood	$PM_{2.5}$ PM_{10}
Apache Junction Maintenance Yard	040213001	SLAMS	Population	Neighborhood	O_3
Casa Grande Airport	040213003	SLAMS	Population	Neighborhood	O_3
Casa Grande Downtown	040210001	SLAMS	Population	Neighborhood	$PM_{2.5}$ PM_{10}
Combs School	040213009	SLAMS	Population	Neighborhood	PM_{10}
Eloy County Complex	040213014	SLAMS	Population	Neighborhood	PM_{10}
Hidden Valley	040213015	SLAMS	Highest Concentration / Source Oriented	Middle	$PM_{2.5}$ PM_{10}
City of Maricopa County Complex	040213016	SLAMS	Population	Neighborhood	PM_{10}
Pinal Air Park	040213007	SLAMS	Background Transport	Regional	PM_{10} O_3
Pinal County Housing Complex	040213011	SLAMS	Population	Neighborhood	PM_{10}
Stanfield County Complex	040213008	SLAMS	Population	Neighborhood	PM_{10}

3.2 Air Quality System (AQS) Requirements

In 2002 Pinal County Air Quality began entering local monitoring data into the EPA's AQS database. 40 CFR 58.16 requires that all ambient air quality data and associated quality assurance checks for all criteria pollutants be submitted to EPA via AQS. Additionally, an annual data certification is required by 40 CFR 58.15. The certification must be sent to EPA Region IX by May 1 stating that the data have been submitted correctly. Pinal County Air Quality submitted an annual data certification for 2019 on April 28, 2020. Precision data for 2019 were submitted to AQS as of March 2020.

3.3 Minimum Network Requirements

40 CFR Part 58 Appendix D defines minimum monitoring requirements based on the population of the Metropolitan Statistical Area (MSA) and the design value for each NAAQS. Pinal County is part of the Phoenix-Mesa-Scottsdale MSA, which has an estimated population of 4,857,962 (US Census Bureau, ACS2016 *American Community Survey 1-year estimates*, https://censusreporter.org/profiles/31000US38060-phoenix-mesa-scottsdale-az-metro-area/). Within Appendix D the EPA recognizes that State or local agencies must consider MSA and Combined Statistical Area (CSA) boundaries and their own political boundaries and geographical characteristics in designing their air monitoring networks. Appendix D states that there may be situations where the EPA Regional Administrator and the affected State or local agencies may need to augment or to divide the overall MSA/CSA monitoring responsibilities and requirements among these various agencies to achieve an effective network design. Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator.

Based on similar comments received on the 2013 - 2019 Network Plans, ADEQ, Maricopa County Air Quality Department (MCAQD) and Pinal County Air Quality began working on a document that clearly defines each organization's monitoring requirements under the MSA/CSA. At this time a draft of the document is under review by each agency. The document will be included in the network plan when it has been finalized.

The design value (DV) is a calculated value based upon the highest recorded concentration at a site in the attainment or nonattainment area. The process for computing the value for each criteria pollutant is described in the appendices of 40 CFR Part 50. For the purpose of this document the DVs listed are the highest calculated concentrations recorded within the MSA. Also listed are the highest concentrations recorded within Pinal County. Tables 3-2 through 3-4 lists the minimum population based monitor requirements for $PM_{2.5}$, PM_{10}, and ozone respectively.

Table 3-2 $PM_{2.5}$ Monitoring Requirements (SLAMS)

Population (MSA)	Most recent 3 yr design value ≥ 85% NAAQS	Most recent 3 yr design value <85% NAAQS
>1M	3	2
500K-1M	2	1
50K-500K	1	0

Table 3-3 PM_{10} Monitoring Requirements (SLAMS)

Population (MSA)	High Concentration Exceeds NAAQS by 20% or more (>180µg/m^3)	Medium Concentration Exceeds 80% of NAAQS (>120µg/m^3)	Low Concentration Less than 80% of NAAQS (<120 µg/m^3)
>1M	6-10	4-8	2-4
500K-1M	4-8	2-4	1-2
250K-500K	3-4	1-2	0-1
100K-250K	1-2	0-1	0

Table 3-4 Ozone Monitoring Requirements (SLAMS)

Population (MSA)	Most recent 3 yr design value ≥ 85% NAAQS	Most recent 3 yr design value <85% NAAQS
>10M	4	2
4-10M	3	1
350K-4M	2	1
50K-350K	1	0

Tables 3-5 through 3-7 depict Pinal County's minimum monitoring requirements for $PM_{2.5}$, PM_{10} and ozone respectively. The tables below show that the minimum monitoring requirements are being met.

These tables include SLAMS and SPM monitors operated by all agencies within the MSA. Additionally, the tables show data for monitors operated only within Pinal County (with the addition of Queen Valley which is operated by ADEQ for ozone) just for reference.

Table 3-5a and Table 3-5b illustrate the highest 24-hour $PM_{2.5}$ 3-year average recorded at a MSA SLAMS or SPM site and also shows Pinal County separately. Both the 24-hour and annual maximums were used to determine the minimum monitoring requirements for $PM_{2.5}$. The highest 24-hour $PM_{2.5}$ 3-year average recorded at a Pinal County SLAMS or SPM site was at Hidden Valley. The Hidden Valley site data is the maximum in both Pinal County and the MSA.

The Hidden Valley site is a replacement site for The Cowtown Road which was not comparable to the annual $PM_{2.5}$ NAAQS. EPA has yet to make determination on the applicability of the annual $PM_{2.5}$ NAAQS at the Hidden Valley site. Pinal County is working with EPA to determine the applicability of the Hidden Valley site to the annual NAAQS. For the purposes of determining the minimum monitoring requirements, data from Hidden Valley will be excluded from the annual comparison until EPA makes their determination. Excluding Hidden Valley the Casa Grande Downtown site represents the highest value in the Pinal County network while the Durango Complex site represents the maximum for the MSA. The calculated $PM_{2.5}$ DV for the Hidden Valley and Durango Complex sites are as follows: 1) 3-year average of the annual means is 9.6 $\mu g/m^3$ (Durango Complex); 2) 3-year average of the 24-hour 98^{th} percentiles is 34 $\mu g/m^3$ (Hidden Valley). The 24-hour DV is > 85% of the NAAQS and the annual DV is <85% of the NAAQS. Considering the 24 hour and annual DVs the network requires three SLAMS monitors in the Pinal County portion of the MSA and two continuous monitors.

Table 3-5a: Minimum Monitoring Requirements for $PM_{2.5}$ SLAMS (FRM/FEM/ARM)

MSA	Counties	Population & Census year	Annual Design Value [µg/m3] DV Years[1]	Annual Design Value Site (name, AQS ID)	Daily Design Value [µg/m3] DV years	Daily Design Value Site (name, AQS ID)	Required SLAMS Sites	Active SLAMS Sites	Additional SLAMS Sites Needed
Phoenix-Mesa-Scottsdale	Pinal and Maricopa	4,857,962 2018	9.6 (2017-2019)	Durango Complex (04-013-9812)	34 (2017-2019)	Hidden Valley (04-021-3015)	3	3	0
Phoenix-Mesa-Scottsdale	Pinal	4,857,962 2018	8.1 (2017-2019)	Casa Grande (04-021-0001)	34 (2017-2019)	Hidden Valley (04-021-3015)	3	3	0

[1]DV Years = the three years over which the design value (DV) was calculated (e.g., 2008-2010)
(Note: see 40CFR 58 App D Sections 4.7.1, 4.7.2 and Table D-5)

Table 3-5b: Minimum Monitoring Requirements for Continuous $PM_{2.5}$ Monitors (FEM/ARM and non-FEM)

MSA	Counties	Population & Census year	Annual Design Value [µg/m3] DV Years[1]	Annual Design Value Site (name, AQS ID)	Daily Design Value [µg/m3], DV years	Daily Design Value Site (name, AQS ID)	Required Continuous Monitors	Active Continuous Monitors[2]	Additional Continuous Monitors Needed
Phoenix-Mesa-Scottsdale	Pinal and Maricopa	4,857,962 2018	9.6 (2017-2019)	Durango Complex (04-013-9812)	34 (2017-2019)	Hidden Valley (04-021-3015)	2	2	0
Phoenix-Mesa-Scottsdale	Pinal	4,857,962 2018	8.1 (2017-2019)	Casa Grande (04-021-0001)	34 (2017-2019)	Hidden Valley (04-021-3015)	2	2	0

[1]DV Years = the three years over which the design value (DV) was calculated (e.g., 2008-2010)
[2] Only count one continuous monitor per site.
(Note: see 40CFR 58 App D Section 4.7.2)
$PM_{2.5}$ monitors required for SIP or Maintenance Plan: N/A at this time

Table 3-6 lists the maximum PM_{10} 24-hour concentration site over the last 3 years of operation (2017-2019) for the MSA and for Pinal County separately. The maximum concentration site was used to determine the minimum monitoring requirements for PM_{10}. The highest PM_{10} 24-hour concentration recorded at a SLAMS or SPM site was 1100 µg/m^3 at the Stanfield site which occurred on April 12, 2018 (flagged as an Exceptional Event in AQS). The value exceeds the NAAQS by 20% or more and is considered a high concentration area. The high concentration designation requires 6 to 10 monitors in the MSA.

Table 3-6: Minimum Monitoring Requirements for PM_{10}

MSA	Counties	Population & Census year	Max Concentration [µg/m³]	Max Concentration Site (name, AQS ID)	Required Sites	Active Sites	Additional Sites Needed
Phoenix-Mesa-Scottsdale	Pinal and Maricopa	4,857,962 2018	1100	Stanfield (04-021-3008)	6-10	9	0
Phoenix-Mesa-Scottsdale	Pinal	4,857,962 2018	1100	Stanfield (04-021-3008)	6-10	9	0

(Note: see 40CFR 58 App D Section 4.6 and Table D-4)
PM_{10} monitors required for SIP or Maintenance Plan: N/A at this time

Table 3-7 lists the site with the highest 3-year average of the 4th highest 8-hour average for the period of 2017-2019 for both Pinal County and the entire MSA. The design value for the MSA was used to determine the minimum monitoring requirements for ozone. The highest 8-hour ozone concentration sites in Pinal County are the Apache Junction and Queen Valley sites while the highest 8-hour ozone concentrations in the MSA are at the Pinnacle Peak and Mesa sites. The calculated ozone DV using the Pinnacle Peak and Mesa 3-year average of the 4th highest 8-hour average is 0.077 ppm. This value is ≥ 85% of the NAAQS, which requires a minimum of three ozone monitors in the MSA.

Table 3-7: Minimum Monitoring Requirements for Ozone (O_3)

MSA	Counties	Population & Census year	8-hr Design Value [ppb], DV Years[1]	Design Value site (name, AQS ID)	# Required Sites	# Active Sites	# Additional Sites Needed
Phoenix-Mesa-Scottsdale	Pinal and Maricopa	4,857,962 2018	0.077 2017-2019	Pinnacle Peak (04-013-2005) Mesa (04-013-1003)	3	4	0
Phoenix-Mesa-Scottsdale	Pinal	4,857,962 2018	0.074 2017 – 2019	Apache Junction (04-021-3001) Queen Valley (04-021-8001)	3	4	0

[1]DV Years = the three years over which the design value (DV) was calculated (e.g., 2008-2010)
(Note: see 40CFR 58 App D Section 4.1 and Table D-2)

3.4 Minimum Sample Frequency

$PM_{2.5}$ - The monitoring rule at 40 CFR 58.12 (d)(1) states that required manual $PM_{2.5}$ monitors at SLAMS stations must operate on at least a 1-in-3 day schedule at sites without a collocated continuously operating $PM_{2.5}$ monitor. For SLAMS sites with both manual and continuous $PM_{2.5}$ monitors operating, the monitoring agency may request approval from the EPA Regional Administrator for a reduction to 1-in-6 day or for seasonal sampling. The EPA Regional Administrator may grant sampling frequency reductions after consideration of factors including, but not limited to, the historical $PM_{2.5}$ data quality assessments, the location of current $PM_{2.5}$ DV sites, and their regulatory data needs. Sites that have DVs that are within plus or minus 10 percent of the NAAQS

(±10% of 35 µg/m^3 is 31.5-38.5 µg/m^3) and sites where the 24-hour DVs exceed the NAAQS for a period of 3 years are required to maintain at least a 1-in-3 day sampling frequency. Sites that have a DV within plus or minus 5 percent of the daily $PM_{2.5}$ NAAQS (±5% of 35µg/m^3 is 33.25-36.75 µg/m^3) must have an FRM or FEM operating on a daily schedule. As of January 1, 2015 all $PM_{2.5}$ sites operated by Pinal County operate at least on a 1-in-3 schedule. The collocated site is currently Hidden Valley (formerly Cowtown Road).

TABLE D-5 OF APPENDIX D TO PART 58—$PM_{2.5}$ MINIMUM MONITORING REQUIREMENTS

MSA population[1] [2]	Most recent 3-year design value ≥85% of any $PM_{2.5}$ NAAQS[3]	Most recent 3-year design value <85% of any $PM_{2.5}$ NAAQS[3] [4]
>1,000,000	3	2
500,000-1,000,000	2	1
50,000-<500,000[5]	1	0

Table 3-8 $PM_{2.5}$ Sampling Frequencies

Site Name	3-Year Average of 98th Percentile 2017-2019	3-Year Average of the Annual Average 2017-2019	Current Sample Frequency	Required Frequency
Apache Junction	11	5.0	1-in-3	1-in-3
Casa Grande	21	8.1	1-in-3, continuous	1-in-3
Hidden Valley (Cowtown Road)	34	12.7	1-in-3, 1-in-6 (collocated), continuous	Continuous

PM_{10} - The monitoring rule at 40 CFR 58.12 (e) states that for PM_{10} sites, the minimum monitoring schedule for the site in the area of expected maximum concentration shall be based on the relative level of that monitoring site concentration with respect to the 24-hour standard. Pinal County currently operates a continuous monitor at its maximum PM_{10} concentration site. Therefore, no change to the PM_{10} sample frequency is required.

3.5 Measurement Quality Checks

Appendix A of 40 CFR Part 58, Section 3.3.1 requires a minimum number of collocated sampling sites to provide a quality assurance demonstration, based on the total number of manual (filter-based) PM monitoring sites in the network. Generally, precision sampling involves operating two identical collocated monitors at the same location on the same sampling schedule.

Appendix A requires 15 percent of the filter-based PM_{10} monitoring sites, by collection method, in a network to be collocated. Additionally, the sites having annual mean PM_{10} concentrations among the highest 25 percent for all the sites in the network must be selected. Pinal County Air Quality currently does not operate any filter-based PM_{10} monitors.

The Pinal County Housing Complex site was historically used as the high-volume filter-based collocation site. In 2013 the filter-based monitors were removed leaving only a SPM TEOM. The PM_{10} TEOM is now the SLAMS monitor of record at the Pinal County Housing Complex site. The Coolidge Maintenance Yard site was chosen for the medium-volume collocation site because it had the highest annual mean of the remaining filter-based sites. The Eloy site filter-based monitor was closed in 2018 leaving only the Coolidge site. The Coolidge site was closed in on December 31, 2019 leaving no filter-based monitors in the network.

Summary of PM_{10} Collocation as described in 40 CFR 58 Appendix A, Section 3.3.1

- Only manual PM_{10} samplers are required to meet a collocation requirement.
- Each manual method designation in the Primary Quality Assurance Organization (PQAO) must have 15 percent of monitors collocated.
- Each PQAO with a PM_{10} network must have at least one collocated PM_{10} monitor.
- Collocated samplers are required to run on at least a 12-day schedule.
- Collocated sites must be within the highest 25 percent annual mean concentrations, unless alternatives are approved by the Regional Administrator.

Appendix A of 40 CFR Part 58 does not require collocation of continuous PM_{10} monitors. Measurement quality of continuous TEOM monitors is achieved through flow verification checks conducted at least once per month.

Appendix A of 40 CFR Part 58 Section 3.2.5 requires $PM_{2.5}$ networks to include collocated sampling at 15 percent of the monitoring sites in a network. Pinal County Air Quality currently operates three $PM_{2.5}$ filter-based monitoring sites with one collocated measurement made at Hidden Valley (relocated Cowtown Road site). Additionally, 80 percent of the collocated audit monitors should be deployed at sites with annual average or daily concentrations estimated to be within ±20 percent of the applicable NAAQS and the remainder at those sites which the monitoring organization has designated as high value sites. Tables 3-9a and 3-9b summarize the collocation requirements and monitors operated by Pinal County.

Table 3-9a: Minimum Collocated Monitoring Requirements for $PM_{2.5}$

Sampling Method	Method Code	# Primary Monitors	# Required Collocated Monitors	# Active Collocated Monitors
Medium-Volume (Thermo Scientific Model 2025i)	145	3	1	1 (Hidden Valley)

Table 3-9b: Minimum Collocated Continuous Monitoring Requirements for $PM_{2.5}$

Sampling Method	Method Code	# Primary Monitors	# Required Collocated Monitors	# Active Collocated FRM Monitors	# Active Collocated FEM Monitors (same method designation as primary)
Met One BAM 1020	170	0	0	2	0

Summary of $PM_{2.5}$ Collocation as described in 40 CFR 58 Appendix A, Sections 3.2.5 & 3.3.5

- Collocation requirements apply to primary monitoring networks and on a method basis
- For each manual FRM designated method (considering primary monitors only):
    - Collocate at 15 percent of monitors (values of 0.5 or greater round up).
    - Must have at least one collocated monitor per PQAO.
    - Collocated monitor must be same FRM method designation as the primary monitor.
- For each continuous FEM designated method (considering primary monitors only):
    - Collocate at 15 percent of monitors (values of 0.5 or greater round up) or at least one collocated monitor.
    - The first collocated monitor must be an FRM.
    - Half of collocated monitors must be FRMs, and half must be the same FEM method as the primary monitor.
    - If an odd number of collocated monitors are required, the additional monitor must be a FRM.
- Collocated FRM samplers are required to run on at least a 12-day sampling frequency.
- 80 percent of the collocated samplers should be located at sites that have DVs within ± 20 percent of either the annual or 24-hour $PM_{2.5}$ NAAQS.
- If an agency has no sites within ± 20 percent of either the annual or 24-hour $PM_{2.5}$ NAAQS, 60 percent of the collocated monitors should be located at sites with annual mean concentrations among the 25 percent highest in the network.
- In addition to the requirements in 40 CFR 58 Appendix A, Section 3.2.5, 40 CFR 58 Appendix D, Section 4.7.2 also requires at least one of the continuous $PM_{2.5}$ monitors in each MSA to be at the same site as a required FRM/FEM/ARM. If one of the required FRM/FEM/ARM monitors is a continuous FEM or ARM, the collocation requirement in 40 CFR 58 Appendix D, Section 4.7.2 does not apply.

Pinal County currently has two continuous $PM_{2.5}$ Met One BAM 1020 monitors. One is located at the Casa Grande Downtown site and the other is at the Hidden Valley site.

3.6 Ozone Season Definition

Beginning in November 2014, Pinal County began operating the Pinal Air Park ozone site on a year-round schedule. Prior to that it was operated on a seasonal schedule. The Casa Grande Airport and Apache Junction Maintenance Yard ozone monitors have always operated on year-round schedule. All Pinal County ozone sites currently operate on a year-round schedule.

3.7 Quality System Requirements

Pinal County Air Quality submitted a Quality Assurance Project Plan (QAPP) to EPA Region IX in January 2007. The QAPP covered all aspects of the ambient monitoring network operations, filter weighing process, and data quality review. All instrument standard operating procedures (SOPs) were completed and included in the QAPP. EPA provided feedback on the QAPP in July of 2008. Pinal County Air Quality revised the QAPP in response to EPA comments and re-submitted the document on October 16th, 2012. The QAPP was conditionally approved by EPA on January 3rd, 2013. Pinal County Air Quality revised appropriate sections of the QAPP to address comments received during the 2012 Technical System Audit (TSA) and the addition of new equipment to the network. This revised QAPP was submitted to EPA in December 2013 and was conditionally approved on February 19, 2015. Pinal County made revisions based on the EPA comments and re-submitted the QAPP to EPA on September 14, 2015. Pinal County received a final version of the QAPP on September 22, 2016 signed and approved by EPA.

All flow rate standards used by Pinal County are traceable to National Institute of Standards and Technology (NIST) and are recertified annually. The ozone standard is verified by the California Air Resource Board (CARB) on an annual basis and the ozone transfer standard is verified by Pinal County Air Quality monthly.

Through ADEQ, Pinal County is a participant in the EPA National Performance Audit Program (NPAP) and the PM Performance Evaluation Program (PEP). Pinal County sites are included in the EPA sponsored audit programs. The most recent semi-annual flow audits and annual performance audits are shown below in Tables 3-10 and 3-11. ADEQ conducts performance audits of Pinal County monitors according to frequencies described in 40 CFR Part 58. All flow rate standards used by ADEQ are traceable to NIST and are recertified annually. The ozone standard used by ADEQ is certified twice per year.

Currently, EPA does not consider Pinal County Air Quality a PQAO as defined by 40 CFR Part 58 Appendix A, paragraph 3.1.1. On February 13, 2013 Pinal County and ADEQ entered into a memorandum of agreement (MOA) addressing a number of technical and administrative items pertinent to establishing PQAO status. The MOA has been extended through February 18, 2023.The MOA also creates a mechanism to pass through EPA 103 Grant funds for $PM_{2.5}$ and 105 general operating funds to Pinal County.

Table 3-10: Semi-Annual Flow Rate Audits

Site	AQS ID	Parameter	Audit Date 1	Audit Date 2
Apache Junction Fire Station	04-021-3002	$PM_{2.5}$	01/23/2019	07/24/2019
Apache Junction Fire Station TEOM	04-021-3002	PM_{10}	01/15/2019	07/24/2019
Casa Grande Downtown (POC 1)	04-021-0001	$PM_{2.5}$	05/01/2019	10/23/2019
Casa Grande Downtown (POC 3)	04-021-0001	$PM_{2.5}$	05/01/2019	10/23/2019
Casa Grande Downtown TEOM	04-021-0001	PM_{10}	05/01/2019	10/23/2019
Combs School TEOM	04-021-3009	PM_{10}	05/02/2019	10/22/2019
Coolidge Maintenance Yard (POC 1 & 2)[a]	04-021-3004	PM_{10}	05/02/2019	10/23/2019
Eloy County Complex TEOM	04-021-3014	PM_{10}	01/16/2019	07/18/2019
Hidden Valley (POC 1, 2 & 3)	04-021-3015	$PM_{2.5}$	01/16/2019	07/18/2019
Hidden Valley TEOM	04-021-3015	PM_{10}	01/16/2019	07/18/2019
City of Maricopa County Complex TEOM	04-021-3016	PM_{10}	05/01/2019	10/23/2019
Pinal Air Park TEOM	04-021-3007	PM_{10}	01/16/2019	07/17/2019
Pinal County Housing Complex TEOM	04-021-3011	PM_{10}	05/02/2019	10/23/2019
Stanfield County Complex TEOM	04-021-3008	PM_{10}	01/16/2019	07/18/2019

a – Discontinued 12/31/2019

Table 3-11: Annual Performance Audits

Site	AQS ID	Parameter	Audit Date
Apache Junction Maintenance Yard	04-021-3001	O_3	10/22/2019
Casa Grande Airport	04-021-3003	O_3	05/01/2019
Pinal Air Park	04-021-3007	O_3	07/17/2019

3.8 Lead Monitoring Network Description

The strengthening of the Lead NAAQS resulted in a revision to 40 CFR Part 58.10. The revision requires state and local agencies to describe required lead monitoring networks in the annual monitoring network plan and submit the description to the Regional Administrator by July 1, 2009. Additionally on December 14, 2010 the EPA revised the ambient monitoring requirements for measuring airborne lead. These rule amendments improved the lead monitoring network to better assess compliance with the revised NAAQS established in November 2008. EPA lowered the lead emissions monitoring threshold from 1.0 tons per year (tpy) to 0.5 tpy. Air quality monitoring agencies will use this threshold to determine if an air quality monitor is required to be placed near a facility emitting lead.

Appendix D to Part 58 entitled "Network Design Criteria for Ambient Air Quality Monitoring" requires states and local agencies to establish ambient lead monitoring "near Pb sources which are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS, taking into account the logistics and potential for population exposure. At a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.50 or more tons per year and from each airport which emits 1.0 or more tons per year based on either the most recent National Emission Inventory or other scientifically justifiable methods and data (such as improved emissions factors or site-specific data) taking into account logistics and the potential for population exposure."

To assess a potential point-source triggered requirement for ambient lead monitoring in Pinal County the 2014 NEI version 1 and internal emission inventory reports were

reviewed by Pinal County Air Quality staff. Table 3-12 summarizes lead emissions reported to NEI in 2014. The NEI 2014 report shows that no Pinal County source exceeded the 0.5 tpy threshold. The Asarco Ray Complex reported highest emissions in Pinal County at 0.15 tpy. A review of the Asarco LLC Ray Operations Mine 2019 emission inventory report, which is required under an air quality operating permit, shows the annual lead emission rate to be 0.07 tpy. Pinal County Air Quality permit management reviewed and accepted the emission rate.

After review of the NEI data Pinal County Air Quality has concluded that monitoring for ambient lead in the county will not be conducted. Pinal County Air Quality will revisit the need and feasibility of lead monitoring as source emissions change.

Table 3-12: NEI 2014 Point Source Lead Emissions in Pinal County

Facility Name	2014 NEI Emissions (tpy)
Asarco LLC Ray Operations Mine	0.15

4.0 Monitoring Site Descriptions

This section describes the purpose, site types, monitor types, and scale of each monitoring site operated by Pinal County Air Quality. All Pinal County air monitoring sites have the basic monitoring objective of NAAQS comparison. Appendix B contains images and summary tables for each site. The changes that have occurred or are planned at each site are detailed within each subsection. Each site has been evaluated for compliance with the siting criteria listed in 40 CFR Part 58 Appendix A (Quality Assurance Requirements for Monitors Used in Evaluating NAAQS), B (Quality Assurance Requirements for Prevention of Significant Deterioration), C (Ambient Air Quality Methodology), D (Network Design) and Appendix E (Probe and Path Siting).

4.1 Apache Junction Fire Station

This site is located behind Apache Junction Fire Station #2 on Bureau of Land Management (BLM) property. Apache Junction lies at the fringe of the Phoenix metropolitan area, where urban development meets the Tonto National Forest and Superstition Wilderness. The site sits on the eastern boundary of the City of Apache Junction with residential homes to the east. Undisturbed desert immediately surrounds the site to the north, south and west with residential homes beyond that. The Superstition Mountain Range is located approximately one mile east of the site. The purpose of the site is to quantify $PM_{2.5}$ and PM_{10} concentrations affecting the surrounding population on a neighborhood scale. This NAAQS site is included in the statewide $PM_{2.5}$ network.

The site was established in 1999 and consisted of two high-volume Andersen FRM $PM_{2.5}$ monitors, one of which operated every third day. The monitors did not take precision samples; instead their operation alternated. One monitor was operated on each run day so that the number of site visits was reduced. In June 2004 a sequential R&P 2025a FRM $PM_{2.5}$ monitor was installed to replace the Andersen $PM_{2.5}$ monitors.

One high-volume PM_{10} monitor from the Apache Junction Maintenance Yard (described in section 4.2) was moved to this site on July 1, 2003. Samples were collected at both sites until January 1, 2004 to develop a correlation between the two sites. The correlation was discussed further in the July 2004 version of the Ambient Monitoring Network Review and Data Summary document in section 5.3.1. As of January 1, 2004 the Apache Junction Fire Station site is the only PM_{10} site in Apache Junction.

On August 20, 2011, a PM_{10} R&P TEOM began operation at this site in response to a recorded exceedance at the filter-based PM_{10} monitor on July 8, 2011. The TEOM was in operation for more than the 4 consecutive quarters as required by 50 CFR App. K 3.1 (f) (1)-(3). This portion of the regulation encourages monitoring agencies to implement continuous monitoring after a measured exceedance and generally states that EPA will not calculate expected exceedances from that monitor if every day sampling is subsequently initiated and maintained for 4 calendar quarters (and 75% completeness is maintained). The extended operation was due to 5 exceedances recorded on August 26, August 28, September 2, September 6, and November 4 of 2011. In January of 2013 ADEQ submitted documentation and received approval from EPA to exclude a number of exceedances in the Phoenix area as windblown dust exceptional events. Four of the

five exceedances recorded in Apache Junction were included in EPA's concurrence with ADEQ's exemption request. This resulted in only one recorded exceedance at Apache Junction occurring on September 6, 2011.

Because the TEOM monitor was operated in a discretionary manor and no exceedances had been recorded since September 6, 2011, the monitor was discontinued July 01, 2013. The high-volume monitor remained in operation until July 01, 2013 when it was replaced with a medium-volume PM_{10} monitor (R&P 2000h), method 098. The 1-in-6 day filter-based 2000h PM_{10} monitor remained in place through the end of 2014, when it was replaced by an R&P TEOM 1400a at the request of ADEQ.

Currently, the site consists of two SLAMS monitors: a sequential FRM Thermo Scientific 2025i $PM_{2.5}$ monitor and a PM_{10} R&P TEOM (FEM). The $PM_{2.5}$ monitor operates on a 1-in-3 day schedule.

The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.2 Apache Junction Maintenance Yard

This site is located within the Pinal County Public Works Yard and is in the center of Apache Junction. Three major roads surround the site: State Highway 88, Idaho Road, and Superstition Boulevard. The maintenance yard area is graveled, well maintained, and historically activity in the yard has not adversely affected the monitors. The historical purpose of this site was to quantify PM_{10} concentrations affecting the surrounding population on a neighborhood scale, quantify carbon monoxide concentrations near a major intersection on a middle scale, and quantify ozone concentrations on the eastern boundary of the Phoenix metropolitan area. The ozone concentration at this site reflects regional transport and neighborhood scale population exposure.

Historically, the site consisted of two Wedding high-volume PM_{10} monitors that collected precision samples on a 1-in-6 day schedule, an ozone monitor, a carbon monoxide monitor, a wind system, a barometric pressure sensor, and a temperature and relative humidity sensor. The inlet funnel on the ozone monitor was changed from stainless steel to Pyrex glass in 2001. The site has met 40 CFR Part 58 Appendix D and E criteria since then.

In an effort to better utilize the resources available to Pinal County Air Quality, the carbon monoxide monitor was removed from the site on May 28th, 2002.

One of the PM_{10} high-volume monitors located at this site was moved to the Apache Junction Fire Station site on July 1, 2003. PM_{10} monitoring took place at both sites until January 1, 2004, so that a correlation between the two sites could be developed. After January 1, 2004 the remaining PM_{10} high-volume monitor was moved to the Pinal County Housing Complex site in order to create a collocated PM_{10} site. Refer to section 4.11 of this document for details on the Pinal County Housing Complex site.

The existing tower at the Apache Junction Maintenance Yard site, on which the wind system is mounted, historically was not stable enough to produce accurate wind direction

measurements. The mounting of the meteorological equipment was reconfigured in May 2007 so that accurate measurements could be taken. Aside from the meteorological equipment the only other instrument still remaining at the site is a FEM Teledyne T400 ozone analyzer which replaced the previous Teledyne 400E on February 21, 2019.

The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.3 Casa Grande Airport

This site is located within the Casa Grande Municipal Airport. Casa Grande lies about 20 miles south of the Phoenix urban area, in a broad desert plain largely dominated by open field agriculture. A small industrial park is located within the airport complex and there are residential subdivisions to the north, south, and east of the airport. The airport is on the north edge of Casa Grande, although the entire surrounding area is being developed. To the east of the airport approximately a quarter of a mile is a major thoroughfare, Pinal Avenue (SR 387).

The purpose of this site is to quantify ozone concentrations south of the Phoenix metropolitan area. The ozone concentration at this site reflects regional transport on a regional scale.

In the past carbon monoxide was also monitored at this site. In an effort to better utilize the resources available to Pinal County Air Quality, the District removed the carbon monoxide monitor located at this site on October 11, 2002.

In August 2006 a new site shelter was installed. On May 20th, 2010 the wind system, barometric pressure sensor and a temperature and relative humidity sensor were removed for cost saving reasons. There is a National Weather Service site on the airport property that is currently being used for meteorological data.

On April 10, 2019 a Teledyne T400 ozone analyzer replaced the previous Teledyne 400E. During the equipment upgrade a Campbell Scientific data logger was also added.

While reviewing the site type and scale in 2019 it was noticed that the Casa Grande Airport site had been changed from neighborhood and population to regional and regional transport potentially in error. Upon further research it looks like the change occurred in the 2015 Network Plan. Pinal County reviewed the site type and site scale as applied to this site and believe it should be neighborhood and population. The 2019 Network Plan returns the site to neighborhood and population.

The site currently consists of only a FEM Teledyne T400 ozone analyzer.

The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.4 Casa Grande Downtown

This site is located on the roof of an Arizona Department of Economic Security building in the downtown area of Casa Grande. A core business district surrounds the site

followed by residential areas in all directions. The purpose of this NAAQS site is to quantify $PM_{2.5}$ and PM_{10} concentrations affecting the surrounding population on a neighborhood scale.

Historically, the site consisted of a high-volume PM_{10} monitor and a $PM_{2.5}$ FRM monitor. The monitors were moved further away from a nearby furnace flue in September of 2001. The high-volume PM_{10} monitor operated on a 1-in-6 day schedule. The $PM_{2.5}$ monitor at this site was upgraded from an Andersen $PM_{2.5}$ FRM monitor to a single channel R&P 2000h $PM_{2.5}$ FRM monitor in March 2004. The $PM_{2.5}$ FRM monitor had operated on a 1-in-6 day schedule since 1999. On January 1, 2007 the sample frequency was changed to 1-in-3 days to meet new monitoring requirements. In March of 2007 a second $PM_{2.5}$ FRM R&P 2000h monitor was installed so that operation could alternate between the two and reduce trips to the site. A continuous PM_{10} R&P TEOM was also installed in March of 2007.

For the first sample of 2009, the sample frequency of the two $PM_{2.5}$ monitors was changed from a frequency of 1-in-3 to 1-in-6 to allow for precision measurement. This change was proposed in the 2007 network plan.

On December 31, 2008 the high-volume PM_{10} monitor was moved from Casa Grande Downtown to Stanfield County Complex and replaced with a PM_{10} R&P 2000h Partisol. On December 31, 2010 the PM_{10} R&P 2000h monitor at Casa Grande Downtown was discontinued. The PM_{10} R&P TEOM was designated as a SLAMS monitor as of January 1, 2011.

Pinal County acquired a continuous $PM_{2.5}$ Met One BAM 1020, method 170, which was installed at the Casa Grande Downtown site on November 8, 2013. Pinal County operated the continuous method for a one year period for evaluation. During this time the monitor was not considered a regulatory method for comparison to the applicable NAAQS. Beginning on January 1, 2015 the $PM_{2.5}$ Met One BAM 1020 was considered the regulatory method for comparison to the applicable NAAQS.

In December 2014, a sequential $PM_{2.5}$ FRM R&P 2025a monitor was installed at Casa Grande Downtown and began operating on a 1-in-3 day schedule beginning January 1, 2015. The R&P 2025a monitor was replaced with a Thermo Scientific 2025i monitor on January 1, 2016. Along with the continuous $PM_{2.5}$ monitor that began operation on January 1, 2015, this satisfies part of the network collocation requirements at this site.

Currently the site consists of a $PM_{2.5}$ FRM filter-based monitor operating on a 1-in-3 schedule, a $PM_{2.5}$ FEM continuous monitor and a PM_{10} FEM continuous monitor. The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.5 Combs School

This site is located within the J.O. Combs Unified School District campus and is approximately 10 miles south of Apache Junction in an area that is rapidly being developed for residential use. The area has historically been dominated by open field agriculture, although residential developments have been built or are being planned to the

north, south, east and west of the site. Historically this site has been used to quantify both ozone and PM_{10} concentrations southeast of the Phoenix metropolitan area. The ozone concentration at this site reflected regional transport and neighborhood population exposure. The PM_{10} concentration at this NAAQS site reflects neighborhood scale population exposure.

This site was installed in June of 2002 and ozone data recording began in July 2002, thus data for a portion of the 2002 ozone season are missing. In March of 2007 a continuous PM_{10} R&P TEOM was added at the site. The ozone analyzer was discontinued May 18, 2011.

On March 29, 2017 the R&P 1400ab TEOM at the site was replaced with a Thermo Scientific 1405 TEOM which is the only remaining monitor at the site.

The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.6 Coolidge Maintenance Yard

This site is located within the Pinal County Public Works Yard on the east side of Coolidge. Coolidge lies about 30 miles southeast of the Phoenix urban area in a desert basin largely dominated by open field agriculture. Residential homes surround the site to the north, south, and east. West of the site is a railroad track with a business district on the west side of the tracks. The purpose of this site is to quantify PM_{10} concentrations affecting the surrounding population on a neighborhood scale.

The site originally had a high-volume PM_{10} monitor, which collected samples on a 1-in-6 day schedule. Due to a scheduled demolition, the monitor was moved from the roof of a cargo trailer to a ground level stand in June of 2002. The monitor was moved approximately 15 meters to the south and the inlet height was reduced from 5.6 meters to 3.4 meters.

On July 01, 2013 the high-volume monitor was replaced with two medium-volume PM_{10} R&P 2000h monitors, method 098. The two medium-volume monitors were operated on a 1-in-6 day schedule and meet the network collocation requirement for the method.

Pinal County Air Quality was notified by Pinal County Public Works in 2018 that they were considering closing this yard within a few years. PCAQCD evaluated the site and options for the site and determined the best course of action is to close the site. The site closure analysis was conducted as described in 40 CFR part 58.14(c) and submitted as part of the 2019 Network Plan. Approval from EPA to close the site was granted on December 19, 2019 and the site was closed on December 31, 2019.

4.7 Eloy County Complex

This NAAQS site is located on the roof of the Pinal County Justice Court building in Eloy. Like Coolidge, Eloy also lies in the agricultural basin of the County. A small business district to the north and south and residential homes to the east and west

surround the site. The purpose of this site is to quantify PM_{10} concentrations affecting the surrounding population on a neighborhood scale.

This site replaced the Eloy City Complex site, which was approximately 300 yards to the south, in March 2007. On July 01, 2013 the high-volume monitor was replaced with a medium-volume R&P 2000h PM_{10} monitor, method 098, which collected samples on a 1-in-6 day schedule.

On January 31, 2016 an exceedance was recorded at the Eloy site. In response Pinal County installed a continuous R&P TEOM monitor at the site. The TEOM began operation on April 1, 2016. The TEOM monitor recorded one exceedance during the remainder of 2016 and three more during 2017. PCAQCD determined that the continuous TEOM method would become the monitor of record at the site replacing the 1-in-6 R&P 2000h and would be classified as a SLAMS monitor. The R&P 2000h was closed on January 1, 2018 leaving only the R&P TEOM at the site.

The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.8 Hidden Valley

This site is located approximately 4.4 miles west of Stanfield and 9.3 miles southwest of the old Cowtown Road site. The site has a dairy and feedlot located approximately 0.3 miles to the east. On the north, west and south side the site is surrounded by low density residential. Outside of the low density residential areas are large areas of agricultural cropland. The site is also in proximity to unpaved roads and to both Highway 84 (south of the site) and Highway 347 (west of the site). This site replaced the Cowtown Road site effective January 1, 2016 and is currently the network's highest PM concentration site. Information on the Cowtown Road site can be found in the 2016 PCAQCD Network Plan.

On December 30, 2017 a meteorological system was added to the site. The MET system is not at 10m and is only used for informational purposes. In March 2019 the MET system was upgraded to a Campbell Scientific sonic system. PCAQCD is considering installation of a 10m tower in the future.

In March 2019 a Thermo Scientific 1405 TEOM replaced the R&P 1400ab TEOM. Also during this upgrade a Campbell Scientific data logger was added to store data from the TEOM and the MET system.

Currently the site consists of a continuous FEM PM_{10} Thermo Scientific 1405 monitor, collocated FRM Thermo Scientific 2025i $PM_{2.5}$ monitors and a continuous FEM Met One BAM 1020 $PM_{2.5}$ monitor.

The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.9 City of Maricopa County Complex

This NAAQS site was historically adjacent to the County Complex in the City of Maricopa. Maricopa lies about 15 miles south of the Phoenix urban area. Historically the area was a small residential area surrounded by pecan orchards, cattle feedlots, and open-field agriculture. In the early 2000s, a substantial number of additional subdivisions were built in every direction near the monitoring site. This site was used to quantify ozone concentrations and is currently used to quantify PM_{10} concentrations in the area. The ozone concentration at this site reflected both regional transport and neighborhood scale population exposure. The PM_{10} concentration at this site reflects neighborhood scale population exposure.

This site was installed in June of 2002 and ozone sampling began in July 2002, thus data for a portion of the 2002 ozone season are missing. The ozone monitor was operated seasonally. In December 2004 a PM_{10} R&P TEOM unit was installed. PM_{10} data beginning January 2005 are included in this document.

In June of 2010 the shelter housing the ozone and TEOM equipment was moved approximately 50 yards from a location on the east side of the complex to a location on the south side of the complex. The move did not result in substantial changes in site exposure or pollutant concentrations, a change of address or a change in AQS site ID.

The ozone analyzer was discontinued May 18, 2011.

On March 26, 2015 Pinal County received notice from the Arizona Department of Transportation that the State Route 347 railroad overpass had been approved. Part of this project was the widening of State Route 347 into the area where the Maricopa County Complex monitor was located which required the monitoring site to be moved.

In response, Pinal County identified a potential replacement site within 0.5 km of the current site location. A relocation plan was developed in coordination with EPA Region IX. The relocation was approved by EPA in December of 2016. The approved location is a county-owned building located at 19955 N. Wilson Ave., which should provide long-term ownership stability. When the site was relocated a new Thermo Scientific 1405 TEOM replaced the existing R&P 1400ab monitor. This site relocation did require a new AQS ID. The old City of Maricopa County Complex site (04-021-3010) was closed in AQS on December 31, 2016 and the new site (04-021-3016) began on January 1, 2017. The site currently consists of only the FEM Thermo Scientific 1405 TEOM.

The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.10 Pinal Air Park

This site is located at water well number two within the Pinal Air Park complex. Pinal Air Park lies about 20 miles northwest of Tucson, at the Pinal/Pima County line. The site is immediately surrounded by undisturbed desert on all sides with an industrial park and airport to the west. The purpose of this site is to quantify background PM_{10} concentrations and transport ozone concentrations on a regional scale. This site serves as

a background PM_{10} site for the central and western portion of the county, which is dominated by agriculture and low elevations (generally around 1500 feet).

The site originally had a high-volume PM_{10} monitor that collected samples on a 1-in-6 day schedule and an ozone monitor that was operated seasonally. The ozone monitor was installed in June of 2002 to assess regional transport from the Tucson metropolitan area. Data collection from this ozone monitor did not begin until July of 2002, thus the data set for 2002 only includes a portion of the ozone season. On November 1, 2015 the ozone monitor began operating year round.

On June 7, 2012, a PM_{10} R&P TEOM began operation in response to a recorded exceedance at the filter-based PM_{10} monitor. The TEOM has continued to operate and is now considered a PM_{10} SLAMS monitor.

On July 01, 2013 the high-volume monitor was replaced with a medium-volume PM_{10} R&P 2000h monitor, method 098. At the end of 2014, the PM_{10} 2000h was shut down and the TEOM remained as the monitor of record at the site.

On March 14, 2019 the R&P 1400ab TEOM was replaced with a Thermo Scientific 1405 TEOM. At the same time the Teledyne 400E ozone analyzer was replaced with a Teledyne T400 analyzer. A new data logger was also installed to log the data from both instruments.

Currently the site consists of a continuous FEM PM_{10} Thermo Scientific 1405 monitor and a FEM Teledyne T400 ozone analyzer.

The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.11 Pinal County Housing Complex

This site is located within the Pinal County Housing Complex and is approximately 11 miles east of Casa Grande in the heart of the agricultural basin of the County. The site was installed in July 2002 to replace the Eleven Mile Corner site, which was approximately 1 mile to the south. The Pinal County Housing site better represents the PM_{10} impact on the surrounding population at the neighborhood scale since the site is adjacent to a subdivision. The site was originally located within a fenced area that houses the sewer lift station for the subdivision. The enclosure is immediately surrounded by native desert growth with active and retired agricultural areas beyond that in all directions. The County Housing subdivision lies southeast of the enclosure. A small dairy, two cotton gins, and the Pinal County Fairgrounds are approximately one mile to the south of the Pinal County Housing site. This site is impacted by several PM_{10} sources in the area, including cotton gins, fairground activity, unpaved roads and agricultural activity.

The site originally consisted of a high-volume PM_{10} monitor running on a 1-in-6 day schedule, a continuous PM_{10} R&P TEOM, a wind system, and a relative humidity and temperature sensor. On January 1, 2004 a second high-volume PM_{10} monitor was

installed to collect precision samples. This replaced the Apache Junction Maintenance Yard as the precision site in the network.

During 2005 it was discovered that one of the high-volume PM_{10} monitors, PCH West, was not operating properly; the second high-volume monitor, PCH East, operated within specifications throughout this time period. The malfunctioning high-volume PM_{10} monitor was removed from service in July 2006. This particular unit had a quick connect device to secure the inlet that none of the other high-volume units operated by the District had. It appears this quick connect device deteriorated over time and was causing the unit to operate outside of the required specifications. Two Wedding high-volume units were installed at this site in July 2006 to collect precision samples.

In 2009 the site was moved approximately 20 yards to the south. A new fenced area and shelter were installed. The move did not result in substantial changes in site exposure or pollutant concentrations, a change of address or a change in AQS site ID.

In December of 2012 the meteorological system was upgraded. A new 10 m tower was installed and a new set of instruments was installed. The equipment was upgraded again on May 6, 2019 to a Campbell Scientific sonic system. Also coming with the upgrade was a new data logger and a rain sensor.

On July 01, 2013 the TEOM was changed from an SPM to a SLAMS monitor and the high-volume monitors, which previously carried a SLAMS designation, were shut down. On May 6, 2019 the R&P TEOM 1400ab was replaced with a Thermo Scientific TEOM 1405.

Currently the site has a wind system, barometric pressure sensor, relative humidity sensor, dew point sensor, rain sensor, temperature sensor and the FEM Thermo Scientific 1405 TEOM.

The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.12 Stanfield County Complex

This site is located behind the Stanfield County Complex. Stanfield lies about 15 miles west of Casa Grande, and about 30 miles south of the Phoenix urban area. Residential homes surround the site on all sides, but the surrounding landscape is dominated by open-field agriculture. Sizeable feedlot and dairy operations lie about three miles to the north, east and west. The purpose of this site is to quantify PM_{10} concentrations affecting the surrounding population on a neighborhood scale.

Historically, the site consisted of a high-volume PM_{10} monitor, which collected samples on a 1-in-6 day schedule. In February 2006 a PM_{10} R&P TEOM was installed at this site to collect continuous data. In April 2006 the Wedding high-volume monitor was replaced with a medium volume Andersen FRM monitor. The Andersen monitor was replaced with an FRM Partisol medium volume monitor in November 2007.

A time-lapse video system which was previously installed at the Cowtown Road site was added to this site in July 2006. The new location allowed the camera to record an overall view of the dust events observed at the feedlots that are approximately three miles west of the site. The video system was removed from the site in September 2010.

On December 31, 2008 the PM_{10} Partisol monitor at Stanfield County Complex was replaced with the high-volume monitor from Casa Grande Downtown. On December 31, 2009 the PM_{10} high-volume monitor at Stanfield was discontinued and the PM_{10} TEOM was designated as a SLAMS monitor as of January 1, 2010.

In February 2017 the meteorological equipment was replaced with a Vaisalla sonic system.

On April 15, 2019 the R&P 1400ab TEOM was replaced with a Thermo Scientific 1405 TEOM. During the upgrade a Campbell Scientific data logger was added to store data from the MET system and the TEOM. The site currently consists of the FEM Thermo Scientific 1405 TEOM and the sonic weather system.

The site meets 40 CFR Part 58 Appendix A, B, C, D and E criteria.

4.13 Queen Valley

This site is located at the Queen Valley water tank. Queen Valley is approximately 16 miles southeast of Apache Junction and just south of the Superstition Wilderness Class I area. The site is on the south edge of Queen Valley and is surrounded by rugged terrain and native vegetation. The equipment at the site is owned and operated by ADEQ. This is an ADEQ SLAMS site that provides data regarding ozone transport from the Phoenix urban area. ADEQ operates instruments at this site to measure ozone, wind, temperature and relative humidity. The ozone data from this site are included in Appendix B of this document because the site demonstrates ozone transport into Pinal County. Please refer to the State of Arizona Air Monitoring Network Plan for additional information.

5.0 Proposed Changes to the Network

This section describes any new sites and/or equipment that Pinal County Air Quality plans to install and summarizes recent changes to the network.

5.1 Continuous PM_{10} Monitor Upgrades

Through an EPA 105 grant, Pinal County has been replacing all of its R&P 1400ab continuous PM_{10} monitors with Thermo Scientific 1405 continuous PM_{10} monitors. This replacement was necessary because there will be no support for the R&P 1400ab continuous PM_{10} monitor by 2020. Pinal County's monitoring network currently consists of nine continuous PM_{10} SLAMS monitors. During the 2016-2017 fiscal year four of the new monitors were purchased and two of the R&P 1400ab monitors were replaced. The monitors that were replaced were at the Combs School site and the City of Maricopa site. The two monitors that were replaced had problems with reporting repeating concentration values. PCAQCD tested the two remaining monitors and they also were reporting repeating concentration values. The repeating values usually occurred once every day or every other day. PCAQCD was invalidating the second value for reporting purposes. PCAQCD worked with Thermo Scientific to resolve the issue. Thermo Scientific engineers determined there was an issue with the internal data logging ability of the 1405 where it would occasionally store the concentration value 1 minute too long thus creating the repeating value when the instrument was polled. PCAQCD was notified that there was nothing that could be done to the 1405 to stop it from repeating concentration values.

The Thermo Scientific 1405 is PCAQCDs preferred monitor because of the ability to obtain five-minute data using a data logger. PCAQCD worked with Campbell scientific to create a program that would allow their data loggers to log Thermo Scientific 1405 data. Once the program was complete the Campbell Scientific internal data logger time was set back one minute. This delay allowed for the data logger to log the correct concentration from the 1405 even on the instances that the 1405 internal data logger would have a repeating value. This system was tested over the course of a month and no repeating values were recorded. Data from the data logger was compared against data taken directly from the 1405 and found to be identical. Data loggers were purchased and installed at the Combs School and Maricopa sites to correct the repeating values at those sites.

With the repeating concentration values problem resolved PCAQCD purchased the additional 1405 monitors and Campbell Scientific data loggers in 2018. New Thermo Scientific 1405 monitors and Campbell Scientific data loggers were installed at the Hidden Valley, Pinal Air Park, Pinal County Housing and Stanfield sites in early 2019. The final three sites getting new 1405 monitors (Apache Junction, Eloy and Casa Grande Downtown) have standalone shelters that the new 1405 monitors will not fit into. PCAQCD ordered new shelters and they arrived in 2019.

In 2019 Pinal County worked with The Arizona Department of Economic Security to get the electrical upgrades that were required to install the new shelter at the Casa Grande Downtown site. The upgrades were completed in March of 2020 and a new Thermo Scientific 1405 TEOM was installed at the site. Pinal County is currently working with

the Pinal County Facilities Department to get the required electrical upgrades completed at the Apache Junction and Eloy sites. Once the electrical upgrades are completed the last of the TEOMs can be installed. With the current replacement plan Pinal County will have all of its R&P 1400ab monitors replaced before the end of parts and support.

5.2 Network Equipment Upgrades

Through the same EPA 105 grant listed in Section 5.1, Pinal County will be upgrading equipment across the network. New ozone analyzers were purchased in 2018 and installed in early 2019. One ozone transfer and one zero air generator were purchased in 2017. PCAQCD reviewed the options and available funding to purchase a dedicated transfer for each ozone site. Through the 105 grant Pinal County should have the necessary funds to purchase a dedicated zero air generator and transfer standard for each ozone site. The order for the transfer standards was placed in April of 2020 and the order for the zero air generators should be placed before the start of the 2020 fiscal year.

Pinal County also purchased modems to replace all the existing wireless modems it the network. Most of the modems have been replaced and the remainder of the modems will be replaced in 2020. Most of the wireless modems across the network were 5-10 years old and no longer supported by the manufacturer. The purchase of new modems has also allowed Pinal County to have communication ability with the Thermo 2025i monitors and the new Teledyne T400 ozone analyzers. This new communication method allows Pinal County the ability to check on the run status and make sure runs were completed and also to schedule make-up runs if there was an incomplete run on the 2025i monitors. A direct connection with the T400 is also now available which allows the user the ability to interact with the instrument as if the user was sitting in front of the instrument. This new connection ability has allowed us to do a more comprehensive daily check of the instruments functionality and will allow us to identify exactly when there was a problem with an instrument. Being able to determine the exact time of the failure has the potential to save us hours or days of data as before we could only use our previous site visit as proof of instrument function.

Finally, the meteorological equipment at all three of the Pinal County meteorological sites was replaced. The Apache Junction and Stanfield sites were replaced with sonic equipment in 2017. The Pinal County Housing site equipment was purchased and installed in April 2019. Pinal County also replaced the equipment that was installed at the Hidden Valley site. The original equipment was installed to provide some information about the conditions at the site. The equipment is not at 10 m so it is purely informational at this point. PCAQCD is considering adding a 10 m tower to the site.

5.3 Ozone Verification Methodology Changes

After reviewing 2019 TSA comments and using guidance provided by EPA, PCAQCD is planning some changes to the verification process at the ozone sites. Each site will have a dedicated transfer standard and zero air generator. Additionally, the span point has been lowered to 0.125 ppm and the precision point is now 0.045 ppm. All verifications will be performed using a through-the-inlet method. Testing on these new methodologies

has begun at the Apache Junction site. The evaluation period and will also include an audit by ADEQ. After the evaluation period PCAQCD will determine if the new methodologies are applied across the network. If the new methodologies are approved they will be in use by the end of 2020.

Appendix A

Acronyms & Abbreviations

Acronyms & Abbreviations used in this document

AADT	Average Annual Daily Traffic
AQS	Air Quality System
ADEQ	Arizona Department of Environmental Quality
ARM	Approved Regional Method
ARS	Arizona Revised Statutes
BACM	Best Available Control Measures
BAM	Beta Attenuation Monitor
BLM	Bureau of Land Management
CAA	Clean Air Act
CARB	California Air Resources Board
CASAC	Clean Air Scientific Advisory Committee
CBSA	Core Based Statistical Area
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CSA	Combined Statistical Area
DV	Design Value
EPA	Environmental Protection Agency
FDMS	Filter Dynamics Measurement System
FEM	Federal Equivalent Method
FRM	Federal Reference Method
GPS	Global Positioning System
HiVol	High-volume PM_{10} monitor
IMPROVE	Interagency Monitoring of Protected Visual Environments
MCAQD	Maricopa County Air Quality Department
MET	Meteorological
MOU	Memorandum of Understanding
MSA	Metropolitan Statistical Area
N/A	Not Applicable
NAAQS	National Ambient Air Quality Standards
NCore	National Core
NEAP	Natural Events Action Plan
NEI	National Emissions Inventory
NIST	National Institute of Standards and Technology
NO_2	Nitrogen Dioxide
NOy	Reactive nitrogen oxides
NPAP	National Performance Audit Program
O_3	Ozone
PAMS	Photochemical Assessment Monitoring Station
Pb	Lead
PCAQCD	Pinal County Air Quality Control District
PEP	Performance Evaluation Program
PM	Particulate Matter
PM_{10}	Particulate Matter less than or equal to 10 microns
$PM_{2.5}$	Particulate Matter less than or equal to 2.5 microns
POC	Parameter Occurrence Code
ppm	parts per million
ppb	parts per billion

PQAO	Primary Quality Assurance Organization
PSD	Prevention of Significant Deterioration
QAPP	Quality Assurance Project Plan
QC	Quality Control
RACM	Reasonably Available Control Methods
RFP	Reasonable Further Progress
R&P	Rupprecht and Patashnick
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Stations
SO_2	Sulfur Dioxide
SOP	Standard Operating Procedure
SPM	Special Purpose Monitor
TEOM	Tapered Element Oscillating Microbalance
tpy	tons per year
TSA	Technical Systems Audit
TSP	Total Suspended Particulate
$\mu g/m^3$	micrograms per cubic meter
VOC	Volatile Organic Compound

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Appendix B

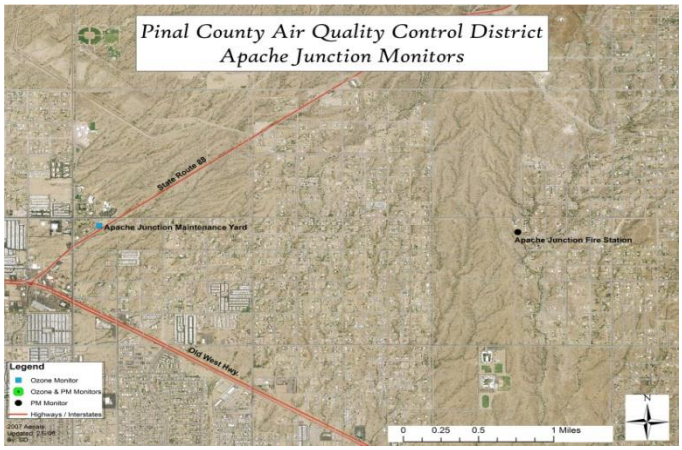
PCAQCD Monitoring Site Descriptions

All sites in this appendix have the following common characteristics, with the exception of Queen Valley:

Table B-1 Common Site Information

Parameter	Description
Representative statistical area name	Phoenix-Mesa-Scottsdale MSA (Pinal Portion)
Collecting Agency	PCAQCD
Reporting Agency	PCAQCD
Analytical Lab for filter sites	PCAQCD
Basic Monitoring Objective	NAAQS

Apache Junction Fire Station – AJFS

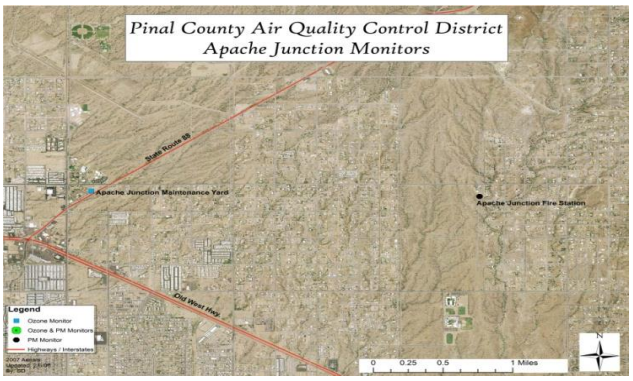


Apache Junction Fire Station is comparable to the 24-hour and annual $PM_{2.5}$ NAAQS.

Local site name	Apache Junction Fire Station (AJFS)	
AQS ID (XX-XXX-XXXX)	04-021-3002	
GPS coordinates (decimal degrees)	33.421194, -111.503222	
Street Address	3955 E Superstition Blvd TE, Apache Junction, AZ	
County	Pinal	
Distance to roadways (meters)[1]	36.6 m (Arroya Rd)	
Traffic count (AADT, year)[1]	17 cars per day (estimated)	
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Gravel, vegetative	
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA	
Pollutant, POC	$PM_{2.5}$, 1	PM_{10}, 3
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	Primary	Primary
Parameter code[2]	88101	81102
Basic monitoring objective(s) [3]	NAAQS	NAAQS
Site type(s)[4]	Population	Population
Monitor type[5]	SLAMS	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None	None
Instrument manufacturer and model	Thermo Scientific 2025i	R&P TEOM 1400a
Method code[7]	145	079
FRM/FEM/ARM/other	FRM	FEM
Collecting Agency	PCAQCD	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	PCAQCD	N/A
Reporting Agency	PCAQCD	PCAQCD
Spatial scale (e.g. micro, neighborhood)[8]	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	01/06/1999	08/20/2011
Current sampling frequency (e.g. 1:3, continuous)	1:3	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	1:3	Continuous
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	3.7	3.0

Distance from supporting structure (meters)	2.1	2.0
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from trees (meters)	21.3	22.1
Height of tree above inlet (meters)	0.0	1.5 (estimated)
Distance to furnace or incinerator flue (meters) and height of flue (meters)	N/A	N/A
Distance between monitors fulfilling a QA collocation requirement (meters).	N/A	N/A
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	No	No
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	N/A	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	N/A	N/A
Will there be changes within the next 18 months? (Y/N)	No	Yes – Discussed in Section 5.1
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	Yes	N/A
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	Monthly	N/A
Frequency of flow rate verification for automated PM analyzers [10]	N/A	Monthly
Frequency of one-point QC check for gaseous instruments [10]	N/A	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	N/A	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	01/23/2019, 07/24/2019	01/15/2019, 07/24/2019

Apache Junction Maintenance Yard -AJMY



Local site name	Apache Junction Maintenance Yard (AJ)	
AQS ID (XX-XXX-XXXX)	04-021-3001	
GPS coordinates (decimal degrees)	33.4214, -111.5436	
Street Address	305 E. Superstition Blvd., Apache Junction, AZ	
County	Pinal	
Distance to roadways (meters)[1]	35 m (SR 88)	
Traffic count (AADT, year)[1]	5836 (2014, ADOT)	
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Gravel	
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA	
Pollutant, POC	O_3, 1	Wind/Temp/RH/BP
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	N/A	N/A
Parameter code[2]	44201	N/A
Basic monitoring objective(s) [3]	NAAQS	N/A
Site type(s)[4]	Population	N/A
Monitor type[5]	SLAMS	N/A
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None	None
Instrument manufacturer and model	Teledyne T400	Vaisala WXT536
Method code[7]	087	N/A
FRM/FEM/ARM/other	FEM	Other
Collecting Agency	PCAQCD	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A	N/A
Reporting Agency	PCAQCD	N/A
Spatial scale (e.g. micro, neighborhood)[8]	Neighborhood	N/A
Monitoring start date (MM/DD/YYYY)	05/13/1992	1993
Current sampling frequency (e.g. 1:3, continuous)	Continuous	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	Continuous	N/A
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	3.5	10 (wind)
Distance from supporting structure (meters)	1	10 (wind)
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	Building – 5.2 m SW, 0.7 m above probe	N/A
Distance from trees (meters)	23.5	30.6
Height of tree above inlet (meters)	5.5 (estimated)	0.0

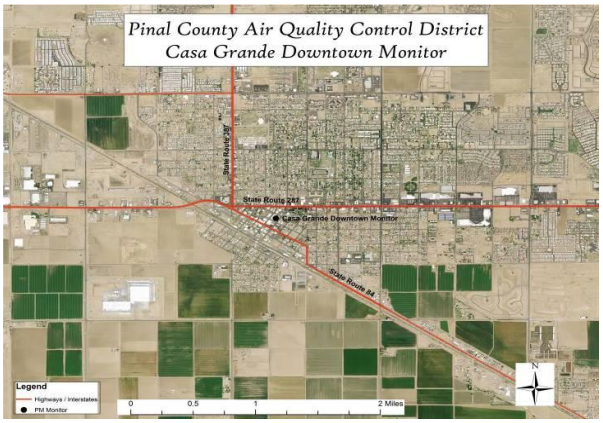
Distance to furnace or incinerator flue (meters) and height of flue (meters)	N/A	N/A
Distance between monitors fulfilling a QA collocation requirement (meters).	N/A	N/A
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	N/A	N/A
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	Glass, Teflon	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	5.97 (11/13/2019)	N/A
Will there be changes within the next 18 months? (Y/N)	Yes – Discussed in Section 5.3	No
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A	N/A
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	N/A	N/A
Frequency of flow rate verification for automated PM analyzers [10]	N/A	N/A
Frequency of one-point QC check for gaseous instruments [10]	Bi-weekly	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	10/22/2019	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	N/A	N/A

Casa Grande Airport - CGA

Local site name	Casa Grande Airport (CGA)
AQS ID (XX-XXX-XXXX)	04-021-3003
GPS coordinates (decimal degrees)	32.954361, -111.76225
Street Address	660 W Aero Dr, Casa Grande, AZ
County	Pinal
Distance to roadways (meters)[1]	494 m (SR 387)
Traffic count (AADT, year)[1]	21,100 (2014, ADOT)
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Paved
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA
Pollutant, POC	O_3, 1
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	N/A
Parameter code[2]	44201
Basic monitoring objective(s) [3]	NAAQS
Site type(s)[4]	Population
Monitor type[5]	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None
Instrument manufacturer and model	Teledyne T400
Method code[7]	087
FRM/FEM/ARM/other	FEM
Collecting Agency	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A
Reporting Agency	PCAQCD
Spatial scale (e.g. micro, neighborhood)[8]	Neighborhood
Monitoring start date (MM/DD/YYYY)	05/01/1992
Current sampling frequency (e.g. 1:3, continuous)	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	Continuous
Sampling season (MM/DD-MM/DD)	01/01-12/31
Probe height (meters)	4.1
Distance from supporting structure (meters)	1
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A
Distance from trees (meters)	15.0

Height of tree above inlet (meters)	0.0
Distance to furnace or incinerator flue (meters) and height of flue (meters)	N/A
Distance between monitors fulfilling a QA collocation requirement (meters).	N/A
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	N/A
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	Glass, Teflon
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	5.6 (10/23/2019)
Will there be changes within the next 18 months? (Y/N)	Yes – Discussed in Section 5.3
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	N/A
Frequency of flow rate verification for automated PM analyzers [10]	N/A
Frequency of one-point QC check for gaseous instruments [10]	Bi-weekly
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	05/01/2019
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	N/A

Casa Grande Downtown – CGD



Casa Grande Downtown is comparable to the 24-hour and annual $PM_{2.5}$ NAAQS.

Local site name	Casa Grande Downtown (CGD)	
AQS ID (XX-XXX-XXXX)	04-021-0001	
GPS coordinates (decimal degrees)	32.877583, -111.752222	
Street Address	401 Marshall St, Casa Grande, AZ	
County	Pinal	
Distance to roadways (meters)[1]	18.4 m (Marshall)	
Traffic count (AADT, year)[1]	3777 (2010, City of Casa Grande)	
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Paved	
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA	
Pollutant, POC	$PM_{2.5}$, 1	$PM_{2.5}$, 3
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	Primary	Other
Parameter code[2]	88101	88101
Basic monitoring objective(s) [3]	NAAQS	NAAQS
Site type(s)[4]	Population	Population
Monitor type[5]	SLAMS	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None	None
Instrument manufacturer and model	Thermo Scientific 2025i	Met One BAM 1020
Method code[7]	145	170
FRM/FEM/ARM/other	FRM	FEM
Collecting Agency	PCAQCD	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	PCAQCD	N/A
Reporting Agency	PCAQCD	PCAQCD
Spatial scale (e.g. micro, neighborhood)[8]	Neighborhood	Neighborhood
Monitoring start date (MM/DD/YYYY)	01/01/2009	01/01/2015
Current sampling frequency (e.g. 1:3, continuous)	1:3	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	1:3	Continuous
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	6.3	6.7
Distance from supporting structure (meters)	2.3	2.7
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A

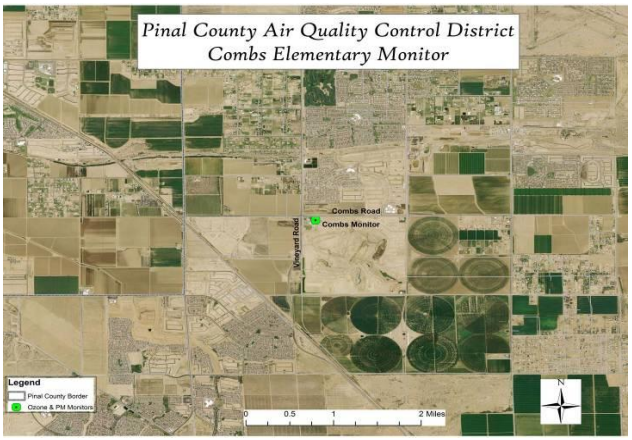
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from trees (meters)	21.3	24.0
Height of tree above inlet (meters)	7.0 (estimated)	6.6 (estimated)
Distance to furnace or incinerator flue (meters) and height of flue (meters)	Furnace flue 5.1 m S (0.6m from supporting structure)	Furnace flue 9.1 m S (0.6m from supporting structure)
Furnace or flue fuel and potential influence on data	Natural gas (no impact)	Natural gas (no impact)
Distance between monitors fulfilling a QA collocation requirement (meters).	3.7	3.7
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	No	No
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	N/A	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	N/A	N/A
Will there be changes within the next 18 months? (Y/N)	No	No
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	Yes	Yes
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	Monthly	N/A
Frequency of flow rate verification for automated PM analyzers [10]	N/A	Monthly
Frequency of one-point QC check for gaseous instruments [10]	N/A	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	N/A	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	05/01/2019, 10/23/2019	05/01/2019, 10/23/2019

Casa Grande Downtown continued

Local site name	Casa Grande Downtown (CGD)
AQS ID (XX-XXX-XXXX)	04-021-0001
GPS coordinates (decimal degrees)	32.877583, -111.752222
Street Address	401 Marshall St, Casa Grande, AZ
County	Pinal
Distance to roadways (meters)[1]	18.4 m (Marshall)
Traffic count (AADT, year)[1]	3777 (2010, City of Casa Grande)
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Paved
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA
Pollutant, POC	PM_{10}, 3
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	Primary
Parameter code[2]	81102
Basic monitoring objective(s) [3]	NAAQS
Site type(s)[4]	Population
Monitor type[5]	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None
Instrument manufacturer and model	Thermo Scientific 1405
Method code[7]	079
FRM/FEM/ARM/other	FEM
Collecting Agency	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A
Reporting Agency	PCAQCD
Spatial scale (e.g. micro, neighborhood)[8]	Neighborhood
Monitoring start date (MM/DD/YYYY)	03/30/2007
Current sampling frequency (e.g. 1:3, continuous)	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	Continuous
Sampling season (MM/DD-MM/DD)	01/01-12/31
Probe height (meters)	6.1
Distance from supporting structure (meters)	2.1
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A
Distance from trees (meters)	24.8
Height of tree above inlet (meters)	7.2 (estimated)
Distance to furnace or incinerator flue (meters) and height of flue (meters)	Furnace flue 11 m S (0.6m from supporting structure)
Furnace or flue fuel and potential influence on data	Natural gas (no impact)
Distance between monitors fulfilling a QA collocation requirement (meters).	N/A
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	No
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs,	N/A

Carbonyls (e.g. Pyrex, stainless steel, Teflon)	
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	N/A
Will there be changes within the next 18 months? (Y/N)	Yes - Discussed in Section 5.1
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	N/A
Frequency of flow rate verification for automated PM analyzers [10]	Monthly
Frequency of one-point QC check for gaseous instruments [10]	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	05/01/2019, 10/23/2019

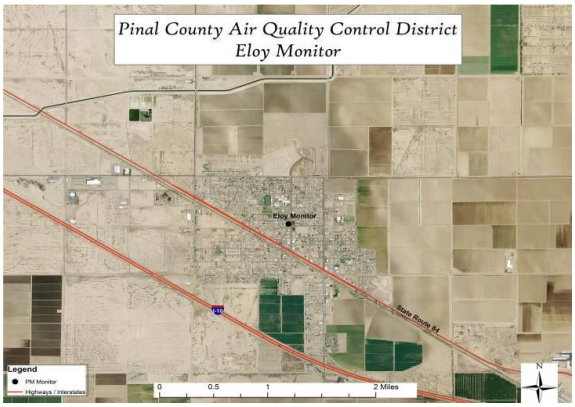
Combs School - CB



Local site name	Combs School (CB)
AQS ID (XX-XXX-XXXX)	04-021-3009
GPS coordinates (decimal degrees)	33.219111, -111.561111
Street Address	301 E Combs Rd, Queen Creek, AZ
County	Pinal
Distance to roadways (meters)[1]	89.5 m (Combs Rd)
Traffic count (AADT, year)[1]	11,991 (2013, Pinal County)
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Paved, dirt
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA
Pollutant, POC	PM_{10}, 3
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	Primary
Parameter code[2]	81102
Basic monitoring objective(s) [3]	NAAQS
Site type(s)[4]	Population
Monitor type[5]	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None
Instrument manufacturer and model	Thermo Scientific 1405
Method code[7]	079
FRM/FEM/ARM/other	FEM
Collecting Agency	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A
Reporting Agency	PCAQCD
Spatial scale (e.g. micro, neighborhood)[8]	Neighborhood
Monitoring start date (MM/DD/YYYY)	03/21/2007
Current sampling frequency (e.g. 1:3, continuous)	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	Continuous
Sampling season (MM/DD-MM/DD)	01/01-12/31
Probe height (meters)	4.7
Distance from supporting structure (meters)	2.1
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A

Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	Building – 7.2 m N, probe is higher than shade structure.
Distance from trees (meters)	22.9
Height of tree above inlet (meters)	7.0 (estimated)
Distance to furnace or incinerator flue (meters) and height of flue (meters)	N/A
Distance between monitors fulfilling a QA collocation requirement (meters).	N/A
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	No
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	N/A
Will there be changes within the next 18 months? (Y/N)	No
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	N/A
Frequency of flow rate verification for automated PM analyzers [10]	Monthly
Frequency of one-point QC check for gaseous instruments [10]	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	05/02/2019, 10/22/2019

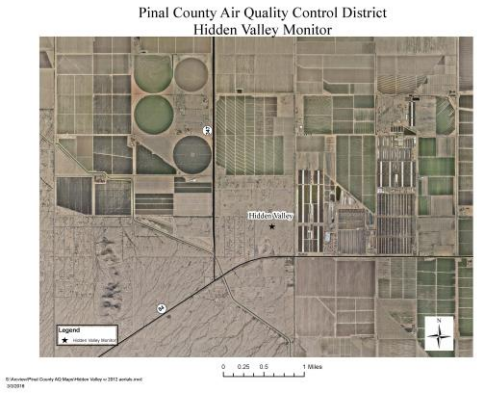
Eloy County Complex - ELY



Local site name	Eloy County Complex (ELY)
AQS ID (XX-XXX-XXXX)	04-021-3014
GPS coordinates (decimal degrees)	32.757639, -111.554861
Street Address	801 N Main St, Eloy, AZ
County	Pinal
Distance to roadways (meters)[1]	31 m (Main St)
Traffic count (AADT, year)[1]	2586 (2007, City of Eloy)
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Paved
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA
Pollutant, POC	PM_{10}, 3
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	Primary
Parameter code[2]	81102
Basic monitoring objective(s) [3]	NAAQS
Site type(s)[4]	Population
Monitor type[5]	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None
Instrument manufacturer and model	R&P TEOM 1400a
Method code[7]	079
FRM/FEM/ARM/other	FEM
Collecting Agency	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	PCAQCD
Reporting Agency	PCAQCD
Spatial scale (e.g. micro, neighborhood)[8]	Neighborhood
Monitoring start date (MM/DD/YYYY)	04/01/2016
Current sampling frequency (e.g. 1:3, continuous)	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	Continuous
Sampling season (MM/DD-MM/DD)	01/01-12/31
Probe height (meters)	5.8
Distance from supporting structure (meters)	2.0
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A
Distance from trees (meters)	26.6 (estimated)

Height of tree above inlet (meters)	0.0
Distance to furnace or incinerator flue (meters)	N/A
Distance between monitors fulfilling a QA collocation requirement (meters).	N/A
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	No
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	N/A
Will there be changes within the next 18 months? (Y/N)	Yes - Discussed in Section 5.1
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	N/A
Frequency of flow rate verification for automated PM analyzers [10]	Monthly
Frequency of one-point QC check for gaseous instruments [10]	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	01/16/2019, 07/18/2019

Hidden Valley – HV



Hidden Valley is comparable to the 24-hour $PM_{2.5}$ NAAQS

Local site name	Hidden Valley (HV)	
AQS ID (XX-XXX-XXXX)	04-021-3015	
GPS coordinates (decimal degrees)	32.884761, -112.03705	
Street Address	43750 W Carefree Place, Maricopa, AZ	
County	Pinal	
Distance to roadways (meters)[1]	595 m (SR 84)	
Traffic count (AADT, year)[1]	2717 (2014, ADOT)	
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Gravel, vegetative	
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA	
Pollutant, POC	$PM_{2.5}$, 1	$PM_{2.5}$, 2
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	Primary	QA Collocated
Parameter code[2]	88101	88101
Basic monitoring objective(s) [3]	NAAQS	NAAQS
Site type(s)[4]	Highest concentration / source oriented	Highest concentration / source oriented
Monitor type[5]	SLAMS	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None	None
Instrument manufacturer and model	Thermo Scientific 2025i	Thermo Scientific 2025i
Method code[7]	145	145
FRM/FEM/ARM/other	FRM	FRM
Collecting Agency	PCAQCD	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	PCAQCD	PCAQCD
Reporting Agency	PCAQCD	PCAQCD
Spatial scale (e.g. micro, neighborhood)[8]	Middle	Middle
Monitoring start date (MM/DD/YYYY)	01/01/2016	01/01/2016
Current sampling frequency (e.g. 1:3, continuous)	1:3	1:6
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	1:3	1:6
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	3.7	3.7
Distance from supporting structure (meters)	2.1	2.1
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from obstructions not on roof. Include horizontal distance +	N/A	N/A

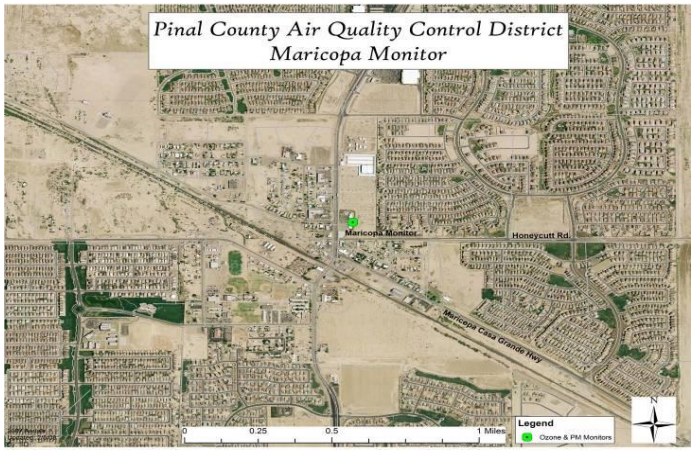
vertical height above probe for obstructions nearby. (meters)		
Distance from trees (meters)	17.0	17.5
Height of tree above inlet (meters)	0.0	0.0
Distance to furnace or incinerator flue (meters)	N/A	N/A
Distance between monitors fulfilling a QA collocation requirement (meters).	1.2	1.2
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	No	No
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	N/A	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	N/A	N/A
Will there be changes within the next 18 months? (Y/N)	No	No
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	No	No
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	Monthly	Monthly
Frequency of flow rate verification for automated PM analyzers [10]	N/A	N/A
Frequency of one-point QC check for gaseous instruments [10]	N/A	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	N/A	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	01/06/2019, 07/18/2019	01/06/2019, 07/18/2019

Hidden Valley continued:

Local site name	Hidden Valley (HV)	
AQS ID (XX-XXX-XXXX)	04-021-3015	
GPS coordinates (decimal degrees)	32.884761, -112.03705	
Street Address	43750 W Carefree Place, Maricopa, AZ	
County	Pinal	
Distance to roadways (meters)[1]	595 m (SR 84)	
Traffic count (AADT, year)[1]	2717 (2014, ADOT)	
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Gravel, vegetative	
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA	
Pollutant, POC	PM_{10}, 3	$PM_{2.5}$, 3
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	Primary	Other
Parameter code[2]	81102	88101
Basic monitoring objective(s) [3]	NAAQS	NAAQS
Site type(s)[4]	Highest concentration / source oriented	Highest concentration / source oriented
Monitor type[5]	SLAMS	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None	None
Instrument manufacturer and model	Thermo Scientific 1405	Met One BAM 1020
Method code[7]	079	170
FRM/FEM/ARM/other	FEM	FEM
Collecting Agency	PCAQCD	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A	N/A
Reporting Agency	PCAQCD	PCAQCD
Spatial scale (e.g. micro, neighborhood)[8]	Middle	Middle
Monitoring start date (MM/DD/YYYY)	01/01/2016	01/01/2016
Current sampling frequency (e.g. 1:3, continuous)	Continuous	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	Continuous	Continuous
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	4.7	4.6
Distance from supporting structure (meters)	2.1	2.0
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from trees (meters)	20.5	20.0
Height of tree above inlet (meters)	0.0	0.0
Distance to furnace or incinerator flue (meters)	N/A	N/A
Distance between monitors fulfilling a QA collocation requirement (meters).	N/A	4.0
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	No	No
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360	360

Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	N/A	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	N/A	N/A
Will there be changes within the next 18 months? (Y/N)	No	No
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A	No
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	N/A	N/A
Frequency of flow rate verification for automated PM analyzers [10]	Monthly	Monthly
Frequency of one-point QC check for gaseous instruments [10]	N/A	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	N/A	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	01/16/2019, 07/18/2019	01/16/2019, 07/18/2019

City of Maricopa County Complex - MCPA



Local site name	Maricopa County Complex (MCPA)
AQS ID (XX-XXX-XXXX)	04-021-3016
GPS coordinates (decimal degrees)	33.061150, -112.05204
Street Address	19955 N. Wilson Ave, Maricopa, AZ
County	Pinal
Distance to roadways (meters)[1]	42 m (Wilson Ave.)
Traffic count (AADT, year)[1]	250 (Estimate)
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Gravel, vegetative
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA
Pollutant, POC	PM_{10}, 3
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	Primary
Parameter code[2]	81102
Basic monitoring objective(s) [3]	NAAQS
Site type(s)[4]	Population
Monitor type[5]	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None
Instrument manufacturer and model	Thermo Scientific 1405
Method code[7]	079
FRM/FEM/ARM/other	FEM
Collecting Agency	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A
Reporting Agency	PCAQCD
Spatial scale (e.g. micro, neighborhood)[8]	Neighborhood
Monitoring start date (MM/DD/YYYY)	01/01/2016
Current sampling frequency (e.g. 1:3, continuous)	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	Continuous
Sampling season (MM/DD-MM/DD)	01/01-12/31
Probe height (meters)	6.9
Distance from supporting structure (meters)	1.1
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A

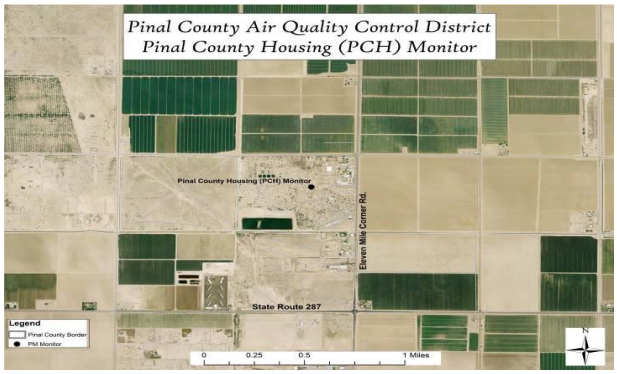
Distance from trees (meters)	65.0 (estimated)
Height of tree above inlet (meters)	0.0
Distance to furnace or incinerator flue (meters	N/A
Distance between monitors fulfilling a QA collocation requirement (meters).	N/A
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	No
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	N/A
Will there be changes within the next 18 months? (Y/N)	No
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	N/A
Frequency of flow rate verification for automated PM analyzers [10]	Monthly
Frequency of one-point QC check for gaseous instruments [10]	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	05/01/2019, 10/23/2019

Pinal Air Park - PP

Local site name	Pinal Air Park (PP)	
AQS ID (XX-XXX-XXXX)	04-021-3007	
GPS coordinates (decimal degrees)	32.508306, -111.308056	
Street Address	Water Well #2, Pinal Air Park Rd, Marana, AZ	
County	Pinal	
Distance to roadways (meters)[1]	54.2 m (service blacktop); 100 m (Pinal Air Park Rd)	
Traffic count (AADT, year)[1]	1100 cars per day (estimated); 2242 (2013, Pinal County)	
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Dirt, vegetative	
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA	
Pollutant, POC	O_3, 1	PM_{10}, 3
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	N/A	Primary
Parameter code[2]	44201	81102
Basic monitoring objective(s) [3]	NAAQS	NAAQS
Site type(s)[4]	Regional transport	Background
Monitor type[5]	SLAMS	SLAMS
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None	None
Instrument manufacturer and model	Teledyne T400	Thermo Scientific 1405
Method code[7]	087	079
FRM/FEM/ARM/other	FEM	FEM
Collecting Agency	PCAQCD	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A	N/A
Reporting Agency	PCAQCD	PCAQCD
Spatial scale (e.g. micro, neighborhood)[8]	Regional	Regional
Monitoring start date (MM/DD/YYYY)	06/15/2002	06/07/2012
Current sampling frequency (e.g. 1:3, continuous)	Continuous	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	Continuous	Continuous
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	4.1	4.0
Distance from supporting structure (meters)	1	1.2
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A

Distance from trees (meters)	15.0	15.0
Height of tree above inlet (meters)	0.0	0.0
Distance to furnace or incinerator flue (meters)	N/A	N/A
Distance between monitors fulfilling a QA collocation requirement (meters).	N/A	N/A
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	N/A	No
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	Glass, Teflon	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	5.74 (11/05/2019)	N/A
Will there be changes within the next 18 months? (Y/N)	Yes – Discussed in Section 5.3	No
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A	N/A
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	N/A	N/A
Frequency of flow rate verification for automated PM analyzers [10]	N/A	Monthly
Frequency of one-point QC check for gaseous instruments [10]	Bi-weekly	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	07/19/2019	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	N/A	01/16/2019, 07/17/2019

Pinal County Housing Complex - PCH



Local site name	Pinal County Housing Complex (PCH)	
AQS ID (XX-XXX-XXXX)	04-021-3011	
GPS coordinates (decimal degrees)	32.891056, -111.5705	
Street Address	970 N Eleven Mile Corner Rd, Casa Grande, AZ	
County	Pinal	
Distance to roadways (meters)[1]	400 m (Eleven Mile Corner Rd)	
Traffic count (AADT, year)[1]	2534 (2013, Pinal County)	
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Gravel, vegetative	
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA	
Pollutant, POC	PM_{10}, 3	Wind/Temp/RH/BP
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	Primary	N/A
Parameter code[2]	81102	N/A
Basic monitoring objective(s) [3]	NAAQS	N/A
Site type(s)[4]	Population	N/A
Monitor type[5]	SLAMS	N/A
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None	None
Instrument manufacturer and model	Thermo Scientific 1405	MetSENS 550
Method code[7]	079	N/A
FRM/FEM/ARM/other	FEM	Other
Collecting Agency	PCAQCD	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A	N/A
Reporting Agency	PCAQCD	N/A
Spatial scale (e.g. micro, neighborhood)[8]	Neighborhood	N/A
Monitoring start date (MM/DD/YYYY)	08/01/2002	2002
Current sampling frequency (e.g. 1:3, continuous)	Continuous	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	Continuous	N/A
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	4.8	10
Distance from supporting structure (meters)	2.1	10
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from trees (meters)	10.8	7.3
Height of tree above inlet (meters)	0.0	0.0

Distance to furnace or incinerator flue (meters)	N/A	N/A
Distance between monitors fulfilling a QA collocation requirement (meters).	N/A	N/A
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	No	N/A
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	N/A	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	N/A	N/A
Will there be changes within the next 18 months? (Y/N)	No	No
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A	N/A
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	N/A	N/A
Frequency of flow rate verification for automated PM analyzers [10]	Monthly	N/A
Frequency of one-point QC check for gaseous instruments [10]	N/A	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	N/A	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	05/02/2019, 10/23/2109	N/A

Queen Valley – QV
See ADEQ Air Monitoring Network Review for site details

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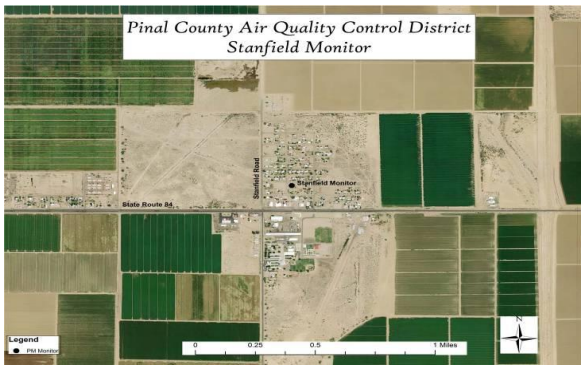
Stanfield County Complex - STNF



Local site name	Stanfield County Complex (STNF)	
AQS ID (XX-XXX-XXXX)	04-021-3008	
GPS coordinates (decimal degrees)	32.881194, -111.962	
Street Address	36697 W Papago Dr, Stanfield, AZ	
County	Pinal	
Distance to roadways (meters)[1]	21.2 m (Navajo Way)	
Traffic count (AADT, year)[1]	91 (estimated)	
Groundcover (e.g. paved, vegetative, dirt, sand, gravel)	Gravel, vegetative	
Representative statistical area name (i.e. MSA, CBSA, other)	Phoenix-Mesa-Scottsdale MSA	
Pollutant, POC	PM_{10}, 3	Wind/Temp/RH/BP
Primary / QA Collocated / Other (provide for all $PM_{2.5}$, PM_{10}, $PM_{10-2.5}$, Pb and NO_2 monitors. Non-PM, Pb, NO_2 monitors should be listed as "N/A".)	Primary	N/A
Parameter code[2]	81102	N/A
Basic monitoring objective(s) [3]	NAAQS	N/A
Site type(s)[4]	Population	N/A
Monitor type[5]	SLAMS	N/A
Network affiliation(s), if applicable (a monitor may have none, one, or multiple) [6]	None	None
Instrument manufacturer and model	Thermo Scientific 1405	Vaisala WXT536
Method code[7]	079	N/A
FRM/FEM/ARM/other	FEM	Other
Collecting Agency	PCAQCD	PCAQCD
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A	N/A
Reporting Agency	PCAQCD	N/A
Spatial scale (e.g. micro, neighborhood)[8]	Neighborhood	N/A
Monitoring start date (MM/DD/YYYY)	02/01/2006	2007
Current sampling frequency (e.g. 1:3, continuous)	Continuous	Continuous
Required sampling frequency (e.g. 1:3 excluding exceptional events/1:1 including exceptional events)[9]	Continuous	N/A
Sampling season (MM/DD-MM/DD)	01/01-12/31	01/01-12/31
Probe height (meters)	4.8	9.2
Distance from supporting structure (meters)	2.1	9.2
Distance from obstructions on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	N/A	N/A
Distance from obstructions not on roof. Include horizontal distance + vertical height above probe for obstructions nearby. (meters)	Carport 3.9 m S, probe is higher than carport	Carport 2 m S, probe is higher than carport
Distance from trees (meters)	18.3	15.5
Height of tree above inlet (meters)	3.7 (estimated)	0.0
Distance to furnace or incinerator flue (meters)	N/A	N/A

Distance between monitors fulfilling a QA collocation requirement (meters).	N/A	N/A
For low volume PM instruments (flow rate < 200 liters/minute), is any PM instrument within 1 m of the lovol? If yes, please list distance (meters) and instrument(s).	No	N/A
For high volume PM instrument (flow rate > 200 liters/minute), is any PM instrument within 2m of the hivol? If yes, please list distance (meters) and instrument(s).	N/A	N/A
Unrestricted airflow (degrees around probe/inlet or percentage of monitoring path)	360	360
Probe material for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	N/A	N/A
Residence time for reactive gases $NO/NO_2/NO_y$, SO_2, O_3; PAMS: VOCs, Carbonyls (seconds)	N/A	N/A
Will there be changes within the next 18 months? (Y/N)	No	No
Is it suitable for comparison against the annual $PM_{2.5}$? (Y/N)	N/A	N/A
Frequency of flow rate verification for manual PM samplers, including Pb samplers [10]	N/A	N/A
Frequency of flow rate verification for automated PM analyzers [10]	Monthly	N/A
Frequency of one-point QC check for gaseous instruments [10]	N/A	N/A
Date of Annual Performance Evaluation conducted in the past calendar year for gaseous parameters (MM/DD/YYYY)	N/A	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors (MM/DD/YYYY, MM/DD/YYYY)	01/16/2019, 07/18/2019	N/A

List road(s) (street name, AADT, data source). To determine which roads to list, evaluate roads within 250 meters of your monitor(s). List road(s) that have relevance per Appendix E. If none are close to the Appendix E criteria, list the nearest roadway. If monitors at your site are significantly different distances from roadways (for example, if your gaseous instruments are 20 meters from your PM instruments, on opposite sides of a building), provide information for each.

[2] Parameter codes may be found at http://www.epa.gov/ttn/airs/airsaqs/manuals/codedescs.htm

[3] Monitoring objectives: public info, NAAQS comparison, research. Monitors may have more than one monitoring objective. All regulatory monitors should have "NAAQS comparison" as a monitoring objective.

[4] Site types: extreme downwind, highest conc., max ozone conc., max precursor impact, population exposure, source oriented, upwind background, general/background, regional transport, welfare-related impacts, quality assurance, other.

[5] Monitor types: SLAMS, SPM, Tribal, Industrial, Non-EPA Federal, EPA, Other. For the most up-to-date list, please visit http://www.epa.gov/ttn/airs/airsaqs/manuals/codedescs.htm

[6] Network affiliations: NATTS, NCore, near road, PAMS, Unofficial PAMS, CASTNET, CSN STN, CSN supplemental, IMPROVE, PSD, proposed NCore, school air toxics, voluntary school air toxics, border grant. For the most up-to-date list, please visit http://www.epa.gov/ttn/airs/airsaqs/manuals/codedescs.htm

[7] Method codes may be found at http://www.epa.gov/ttn/airs/airsaqs/manuals/codedescs.htm

[8] Spatial scales: micro, middle, neighborhood, urban, regional, national, and global. See Table D-1 of 40 CFR part 58 App. D for appropriate siting scales for various site types.

[9] If exceptional events are relevant, include sampling frequency with exceptional events included and excluded.

[10] e.g. weekly, bi-weekly, monthly, etc.

Appendix C

PCAQCD Ambient Air Monitoring Data

Please refer to Section 1.0 for a detailed description of the NAAQS for ozone, PM_{10} and $PM_{2.5}$.

Apache Junction Maintenance Yard Carbon Monoxide Data (in ppm)
1 Hour Averages

NAAQS: In order to meet the standard the second highest reading must be less than or equal to 35 ppm.

Table C-1

Year	Maximum Reading	2nd Highest Reading	Number of Daily Exceedances	Number of Sample Hours
1996	2.60	2.60	0	4884
1997	2.20	2.00	0	8675
1998	2.00	2.00	0	8609
1999	1.90	1.70	0	8057
2000	1.48	1.39	0	8543
2001	3.74	3.54	0	6610
2002[a]	1.28	1.21	0	3533

Apache Junction Maintenance Yard Carbon Monoxide Data (in ppm)
8 Hour Averages

NAAQS: In order to meet the standard the second highest reading must be less than or equal to 9 ppm.

Table C-2

Year	Maximum Reading	2nd Highest Reading	Number of Daily Exceedances	Number of Sample Hours
1996	1.08	1.00	0	4873
1997	1.16	1.01	0	8680
1998	1.28	1.08	0	8613
1999	0.91	0.86	0	8017
2000	0.69	0.69	0	8549
2001	1.06	0.90	0	6633
2002 [a]	0.79	0.75	0	3552

Footnotes:

a - Carbon Monoxide monitoring was discontinued at the Apache Junction Maintenance Yard site on 05/28/2002. The 2002 readings only represent part of the 2002 carbon monoxide season.

Casa Grande Airport Carbon Monoxide Data (in ppm)
1 Hour Averages

NAAQS: In order to meet the standard the second highest reading must be less than or equal to 35 ppm.

Table C-3

Year	Maximum Reading	2nd Highest Reading	Number of Daily Exceedances	Number of Sample Hours
1996	1.60	1.50	0	8728
1997	1.50	1.50	0	8595
1998	3.90	3.60	0	8513
1999	2.10	1.50	0	7625
2000	2.45	2.25	0	8416
2001	1.53	1.10	0	8326
2002[a]	1.23	1.22	0	6715

Casa Grande Airport Carbon Monoxide Data (in ppm)
8 Hour Averages

NAAQS: In order to meet the standard the second highest reading must be less than or equal to 9 ppm.

Table C-4

Year	Maximum Reading	2nd Highest Reading	Number of Daily Exceedances	Number of Sample Hours
1996	1.19	1.16	0	8734
1997	1.29	1.11	0	8634
1998	1.46	1.46	0	8525
1999	0.86	0.80	0	7621
2000	0.95	0.84	0	8420
2001	0.77	0.76	0	8355
2002[a]	0.81	0.76	0	6745

Footnotes:
a - Carbon Monoxide monitoring was discontinued at the Casa Grande Airport site on 10/11/2002. The 2002 readings only represent part of the 2002 carbon monoxide season.

Apache Junction Maintenance Yard Ozone Data (in ppm)
8 Hour Averages

Table C-5

Year	Maximum Reading	2nd Highest Reading	3rd Highest Reading	4th Highest Reading	3 Year Avg of the 4th Highest	Number of Daily Excursions
1993	0.086	0.082	0.080	0.080	N/A	1
1994	0.089	0.087	0.085	0.085	N/A	5
1995	0.095	0.093	0.093	0.091	0.085	8
1996	0.092	0.086	0.085	0.085	0.087	6
1997	0.084	0.083	0.082	0.082	0.086	0
1998	0.091	0.089	0.082	0.082	0.083	2
1999	0.091	0.089	0.081	0.08	0.081	2
2000	0.087	0.084	0.082	0.082	0.081	1
2001	0.081	0.081	0.078	0.077	0.079	0
2002	0.081	0.081	0.080	0.079	0.079	0
2003	0.090	0.074	0.072	0.072	0.076	1
2004	0.070	0.070	0.070	0.069	0.073	0
2005	0.076	0.074	0.071	0.068	0.069	0
2006	0.094	0.090	0.087	0.084	0.074	4
2007	0.083	0.080	0.079	0.077	0.076	0
2008[b]	0.082	0.081	0.081	0.079	0.080	7
2009	0.076	0.071	0.070	0.069	0.075	1
2010	0.078	0.077	0.075	0.073	0.074	2
2011	0.079	0.075	0.075	0.075	0.072	1
2012	0.079	0.078	0.077	0.076	0.075	4
2013	0.074	0.073	0.069	0.069	0.073	0
2014	0.074	0.069	0.069	0.066	0.070	0
2015[c]	0.080	0.074	0.073	0.073	0.069	1
2016	0.075	0.074	0.072	0.072	0.070	6
2017	0.088	0.082	0.080	0.079	0.075	14
2018	0.076	0.075	0.075	0.071	0.074	7
2019	0.082	0.075	0.072	0.072	0.074	5

Footnotes:

b - The 8-hour ozone standard was revised effective May 27, 2008. The previous 8-hour average of 0.080 ppm was lowered to 0.075 ppm.

c - The 8-hour ozone standard was revised effective December 28, 2015. The previous 8-hour average of 0.075 ppm was lowered to 0.070 ppm.

Casa Grande Airport Ozone Data (in ppm)
8 Hour Averages

Table C-6

Year	Maximum Reading	2nd Highest Reading	3rd Highest Reading	4th Highest Reading	3 Year Avg of the 4th Highest	Number of Daily Excursions
1993	0.081	0.074	0.073	0.072	N/A	0
1994	0.079	0.077	0.076	0.076	N/A	0
1995	0.077	0.074	0.073	0.071	0.073	0
1996	0.086	0.081	0.080	0.079	0.075	1
1997	0.075	0.074	0.073	0.072	0.074	0
1998	0.070	0.069	0.069	0.068	0.073	0
1999	0.083	0.083	0.079	0.078	0.072	0
2000	0.087	0.086	0.086	0.085	0.077	5
2001	0.078	0.078	0.074	0.074	0.079	0
2002	0.080	0.079	0.079	0.077	0.078	0
2003	0.077	0.074	0.073	0.073	0.074	0
2004	0.072	0.070	0.070	0.070	0.073	0
2005	0.081	0.075	0.073	0.072	0.071	0
2006	0.076	0.077	0.074	0.073	0.071	0
2007	0.071	0.071	0.071	0.070	0.071	0
2008[b]	0.077	0.077	0.074	0.073	0.072	2
2009	0.068	0.067	0.066	0.066	0.069	0
2010	0.071	0.070	0.068	0.068	0.069	0
2011	0.072	0.070	0.070	0.070	0.068	0
2012	0.073	0.071	0.070	0.070	0.069	0
2013	0.077	0.067	0.065	0.064	0.068	1
2014	0.076	0.066	0.065	0.065	0.066	1
2015[c]	0.068	0.068	0.067	0.066	0.065	0
2016	0.067	0.066	0.066	0.066	0.065	0
2017	0.074	0.072	0.068	0.067	0.066	2
2018	0.071	0.069	0.069	0.066	0.066	1
2019	0.077	0.071	0.069	0.069	0.067	2

Footnotes:

b - The 8-hour ozone standard was revised effective May 27, 2008. The previous 8-hour average of 0.080 ppm was lowered to 0.075 ppm.

c - The 8-hour ozone standard was revised effective December 28, 2015. The previous 8-hour average of 0.075 ppm was lowered to 0.070 ppm.

Combs School Ozone Data (in ppm)
8 Hour Averages

Table C-7

Year	Maximum Reading	2nd Highest Reading	3rd Highest Reading	4th Highest Reading	3 Year Avg of the 4th Highest	Number of Daily Excursions
2002	0.075	0.074	0.071	0.068	N/A	0
2003	0.081	0.073	0.073	0.072	N/A	0
2004	0.064	0.062	0.060	0.059	0.066	0
2005	0.080	0.077	0.069	0.067	0.066	0
2006	0.079	0.073	0.072	0.071	0.066	0
2007	0.063	0.062	0.061	0.057	0.065	0
2008[b]	0.074	0.072	0.071	0.071	0.066	0
2009	0.063	0.063	0.063	0.062	0.063	0
2010	0.067	0.064	0.063	0.062	0.063	0

Footnotes:

b - The 8-hour ozone standard was revised effective May 27, 2008. The previous 8-hour average of 0.080 ppm was lowered to 0.075 ppm.

City of Maricopa County Complex Ozone Data (in ppm)
8 Hour Averages

Table C-8

Year	Maximum Reading	2nd Highest Reading	3rd Highest Reading	4th Highest Reading	3 Year Avg of the 4th Highest	Number of Daily Excursions
2002	0.083	0.080	0.073	0.068	N/A	0
2003	0.082	0.077	0.075	0.075	N/A	0
2004	0.072	0.067	0.065	0.064	0.069	0
2005	0.070	0.069	0.067	0.062	0.067	0
2006	0.082	0.077	0.068	0.068	0.065	0
2007	0.061	0.060	0.059	0.059	0.063	0
2008[b]	0.073	0.070	0.070	0.069	0.065	0
2009	0.066	0.062	0.062	0.061	0.063	0
2010	0.068	0.068	0.066	0.066	0.065	0

Footnotes:

b - The 8-hour ozone standard was revised effective May 27, 2008. The previous 8-hour average of 0.080 ppm was lowered to 0.075 ppm.

Pinal Air Park Ozone Data (in ppm)
8 Hour Averages

Table C-9

Year	Maximum Reading	2nd Highest Reading	3rd Highest Reading	4th Highest Reading	3 Year Avg of the 4th Highest	Number of Daily Excursions
2002	0.080	0.074	0.072	0.070	N/A	0
2003	0.076	0.075	0.075	0.074	N/A	0
2004	0.069	0.069	0.068	0.067	0.070	0
2005	0.079	0.079	0.078	0.077	0.072	0
2006	0.075	0.072	0.071	0.070	0.071	0
2007	0.072	0.071	0.068	0.066	0.071	0
2008[b]	0.071	0.071	0.071	0.070	0.068	0
2009	0.073	0.066	0.065	0.065	0.067	0
2010	0.070	0.069	0.067	0.066	0.067	0
2011	0.073	0.071	0.070	0.070	0.067	0
2012	0.076	0.074	0.074	0.072	0.069	1
2013	0.081	0.067	0.065	0.065	0.069	1
2014	0.075	0.065	0.065	0.065	0.067	1
2015	0.069	0.069	0.067	0.066	0.065	0
2016	0.070	0.070	0.068	0.066	0.066	0
2017	0.077	0.076	0.073	0.072	0.068	4
2018	0.070	0.069	0.069	0.068	0.068	0
2019	0.072	0.068	0.068	0.068	0.069	1

Footnotes:

b - The 8-hour ozone standard was revised effective May 27, 2008. The previous 8-hour average of 0.080 ppm was lowered to 0.075 ppm.

c - The 8-hour ozone standard was revised effective December 28, 2015. The previous 8-hour average of 0.075 ppm was lowered to 0.070 ppm.

Queen Valley Ozone Data (in ppm)
8 Hour Averages

Table C-10

Year	Maximum Reading	2nd Highest Reading	3rd Highest Reading	4th Highest Reading	3 Year Avg of the 4th Highest	Number of Daily Excursions
2001	0.084	0.084	0.080	0.079	N/A	0
2002	0.085	0.083	0.083	0.083	N/A	1
2003	0.094	0.091	0.090	0.087	0.083	4
2004	0.077	0.076	0.074	0.073	0.081	0
2005	0.097	0.096	0.086	0.084	0.081	3
2006	0.091	0.087	0.080	0.080	0.079	2
2007	0.077	0.077	0.076	0.076	0.080	0
2008[b]	0.085	0.082	0.082	0.080	0.078	9
2009	0.076	0.075	0.071	0.070	0.075	2
2010	0.075	0.074	0.073	0.072	0.074	1
2011	0.083	0.080	0.079	0.078	0.073	5
2012	0.082	0.080	0.079	0.078	0.076	8
2013	0.079	0.077	0.075	0.073	0.076	2
2014	0.080	0.071	0.069	0.068	0.073	1
2015	0.079	0.076	0.074	0.074	0.071	2
2016	0.073	0.073	0.072	0.072	0.071	6
2017	0.087	0.079	0.079	0.075	0.074	10+
2018	0.079	0.077	0.076	0.076	0.074	10+
2019	0.078	0.076	0.073	0.072	0.074	5

Footnotes:

b - The 8-hour ozone standard was revised effective May 27, 2008. The previous 8-hour average of 0.080 ppm was lowered to 0.075 ppm.

c - The 8-hour ozone standard was revised effective December 28, 2015. The previous 8-hour average of 0.075 ppm was lowered to 0.070 ppm.

24 Hour PM_{10} Averages (in $\mu g/m^3$)

Table C-11

Year	Reading Maximum	Number of Daily Exceedances	Expected Exceedance Rate	3 Year Average of the Expected Exceedance Rate
Apache Junction Maintenance Yard North (HiVol)				
1995	67.72	0	0	N/A
1996	34.05	0	0	N/A
1997	81	0	0	0
1998	61.45	0	0	0
1999	64	0	0	0
2000	111.4	0	0	0
2001	49.1	0	0	0
2002[b]	61.5	0	0	0
2003[j]	94.5	0	0	0
Apache Junction Maintenance Yard South (HiVol)				
1995	67.91	0	0	N/A
1996	36.93	0	0	N/A
1997	81.33	0	0	0
1998	62.73	0	0	0
1999	63.5	0	0	0
2000	107.3	0	0	0
2001	93.5	0	0	0
2002[b]	62.4	0	0	0
2003[b,g]	91.3	0	0	0
Apache Junction Fire Station (HiVol)				
2003[b,h]	103.3	0	0	N/A
2004	35.7	0	0	N/A
2005	47	0	0	0
2006	73	0	0	0
2007	48.2	0	0	0
2008	57	0	0	0
2009	54	0	0	0
2010	66	0	0	0
2011	194	1	5.75	1.9
2012	90	0	0	1.9
2013[t]	115	0	0	1.9
Apache Junction Fire Station (47 mm)				
2013[t]	115	0	0	1.9
2014	99	0	0	0
Apache Junction Fire Station (TEOM)				
2011	283	5	10.2	3.4
2012	131	0	0	3.4
2013[u]	152	0	0	3.4
2015[u]	69	0	0	0
2016	89	0	0	0

Table C-11 continued

Year	Reading Maximum	Number of Daily Exceedances	Expected Exceedance Rate	3 Year Average of the Expected Exceedance Rate
2017	145	0	0	0
2018	508	4	4	1.3
2019	60	0	0	1.3
Casa Grande Downtown (HiVol)				
1999	64.3	0	0	0
2000	82.5	0	0	0
2001	104.2	0	0	0
2002[b]	68.5	0	0	0
2003	98.7	0	0	0
2004	52.8	0	0	0
2005	79.2	0	0	0
2006	81.2	0	0	0
2007	112	0	0	0
2008	74	0	0	0
Casa Grande Downtown (47mm)				
2009	109	0	0	0
2010[q]	136	0	0	0
Casa Grande Downtown (TEOM)				
2007	983	7	7	N/A
2008	203	3	3	N/A
2009	848	4	4	4.7
2010	569	1	1	2.7
2011	479	14	14	6.3
2012	233	2	2	5.6
2013	302	4	4	6.7
2014	929	5	5	3.7
2015	176	1	1	3.3
2016	156	1	1.1	2.3
2017	226	2	2.1	1.4
2018	451	9	9	4.1
2019	133	0	0	3.7
Combs School (TEOM)				
2007	970	31	44.6	N/A
2008	270	4	4	N/A
2009	220	4	4	17.5
2010	366	1	1	3
2011	419	12	12	5.7
2012	206	5	5	6
2013	300	3	3	6.7
2014	247	5	5	4.3
2015	183	1	1	3
2016	236	2	2	2.7
2017	177	1	1	1.3
2018	365	3	3	2.0
2019	118	0	0	1.3

Table C-11 Continued

Year	Reading Maximum	Number of Daily Exceedances	Expected Exceedance Rate	3 Year Average of the Expected Exceedance Rate
Coolidge Maintenance Yard (HiVol)				
1999	83.6	0	0	0
2000	76.5	0	0	0
2001	73.4	0	0	0
2002[b]	106.4	0	0	0
2003	105.7	0	0	0
2004	57.5	0	0	0
2005	81.4	0	0	0
2006	105.5	0	0	0
2007	82	0	0	0
2008	91	0	0	0
2009	189	1	6	2.0
2010	87	0	0	2.0
2011	110	0	0	2.0
2012	134	0	0	0
2013[t]	139	0	0	0
Coolidge Maintenance Yard (47 mm) North (collocated)				
2013[t]	139	0	0	0
2014	131	0	0	0
2015	67	0	0	0
2016	224	1	6	2.0
2017	102	0	0	2.0
2018	142	0	0	2.0
2019	63	0	0	0
Coolidge Maintenance Yard (47 mm) South (Primary)				
2013[t]	139	0	0	0
2014	109	0	0	0
2015	74	0	0	0
2016	222	1	6	2.0
2017	104	0	0	2.0
2018	140	0	0	2.0
2019	68	0	0	0
Cowtown Road (47mm)				
2005[b,k]	787.9	8	N/A	Avg. > 1.0
2006	606	39	278	Avg. > 1.0
2007	759	24	167	Avg. > 1.0
2008	465	24	146	197
2009	230	5	31	115
2010	275	3	18	65
2011	828	12	79.9	43

Table C-11 Continued

Year	Reading Maximum	Number of Daily Exceedances	Expected Exceedance Rate	3 Year Average of the Expected Exceedance Rate
Cowtown Road (TEOM)				
2002[a,b]	1390.6	209	209	Avg. > 1.0
2003	718.5	150	150	Avg. > 1.0
2004[b]	600.1	105	105	155
2005[b]	769.6	163	163	139
2006	1078.9	228	238	169
2007	1014	189	190	197
2008	609	173	175	201
2009	631	53	53	139
2010	497	28	28	85
2011	2316	98	98	60
2012	682	64	64	62.3
2013	1007	67	67	76.3
2014	540	63	63	64.7
2015[z]	271	20	20	50
Eloy (HiVol)				
1999	141.6	0	0	0
2000	102.1	0	0	0
2001	142.2	0	0	0
2002[b]	146.3	0	0	0
2003	153.9	0	0	0
2004	46.8	0	0	0
2005	72.9	0	0	0
2006	98.7	0	0	0
2007[o]	136	0	0	0
2008	109	0	0	0
2009	153	0	0	0
2010	87	0	0	0
2011	155	0	0	0
2012	121	0	0	0
2013[t]	108	0	0	0
Eloy (47 mm)				
2013[t]	108	0	0	0
2014	80	0	0	0
2015	73	0	0	0
2016	328	2	12	4.0
2017	78	0	0	4.0
Eloy (TEOM)				
2016[x]	454	1	1.3	1.0
2017	168	3	3.2	2.1
2018	355	8	8	4.1
2019	129	0	0	3.7

Table C-11 Continued

Year	Reading Maximum	Number of Daily Exceedances	Expected Exceedance Rate	3 Year Average of the Expected Exceedance Rate
Hidden Valley (TEOM)				
2016	1367	30	30.9	37.7
2017	251	38	38.3	34.6
2018	489	29	29	32.8
2019	239	12	12	26.4
Mammoth (HiVol)				
1999[b]	50	0	0	0
2000	63.5	0	0	0
2001	99.2	0	0	0
2002[b]	52.5	0	0	0
2003	89.4	0	0	0
2004	30.8	0	0	0
2005	32.5	0	0	0
2006	30.7	0	0	0
2007	40	0	0	0
2008	35	0	0	0
2009	42	0	0	0
2010[r]	46	0	0	0
City of Maricopa County Complex (TEOM)				
2005[l]	239.1	18	18	Avg. > 1.0
2006	429	21	21	Avg. > 1.0
2007	724	20	20	21
2008	520	6	6	16
2009	607	11	11	12
2010	172	2	2	6.3
2011	531	15	15	9.3
2012	258	7	9	8.6
2013	334	4	4	9.3
2014	239	2	2	5.0
2015	135	0	0	2.0
2016	171	1	1	1.0
2017	232	2	2	1.0
2018	658	7	7.2	3.4
2019	130	0	0	3.1

Table C-11 Continued

Year	Reading Maximum	Number of Daily Exceedances	Expected Exceedance Rate	3 Year Average of the Expected Exceedance Rate
Pinal Air Park (HiVol)				
1999	60.4	0	0	0
2000	74.2	0	0	0
2001[b]	103.3	0	0	0
2002[b]	62	0	0	0
2003	107.8	0	0	0
2004	38.8	0	0	0
2005	122.4	0	0	0
2006	76.8	0	0	0
2007	113	0	0	0
2008	55	0	0	0
2009	51	0	0	0
2010	70	0	0	0
2011	86	0	0	0
2012	159	1	6.1	2
2013[t]	61	0	0	2
Pinal Air Park (47mm)				
2013[t]	61	0	0	2
2014[w]	103	0	0	0
Pinal Air Park (TEOM)				
2012	133	0	0	0
2013	262	2	2	1
2014	175	1	1	1
2015	63	0	0	1
2016	85	0	0	0.3
2017	148	0	0	0
2018	141	0	0	0
2019	66	0	0	0

Table C-11 Continued

Year	Reading Maximum	Number of Daily Exceedances	Expected Exceedance Rate	3 Year Average of the Expected Exceedance Rate
Pinal County Housing Complex West (HiVol)				
2002[b,f]	166.1	1	N/A	Avg. > 1.0
2003	288.6	2	11.5	Avg. > 1.0
2004	155.1	1	5.8	Avg. > 1.0
2005[b]	157.7	1	6.1	7.8
2006	152.5	0	0	4
2007	224	1	6.5	4.2
2008	141	0	0	3.3
2009	179	2	13.1	6.5
2010	128	0	0	4.4
2011	212	3	18.4	10.5
2012	131	0	0	6.1
2013[v]	97	0	0	6.1
Pinal County Housing Complex East (HiVol)				
2004	113.6	0	0	0
2005	179.4	2	11.9	Avg. > 1.0
2006	209.7	3	20.2	10.7
2007	341	1	6.1	12.7
2008	245	1	5.7	10.7
2009	187	1	6	5.9
2010	130	0	0	3.9
2011	271	3	18.1	8
2012	193	1	6.1	8.1
2013[v]	104	0	0	8.1
Pinal County Housing (TEOM)				
2002[b,f]	394.5	9	9	Avg. > 1.0
2003	357.8	11	11	Avg. > 1.0
2004	490.7	7	7	9
2005	326	17	17	11.7
2006	913	33	33.6	19.2
2007	2253	19	20	23.5
2008	285	10	10	21.2
2009	1445	17	17	15.7
2010	1761	6	6	11
2011	2040	21	21	14.7
2012	538	5	5	10.6
2013	242	5	5	10.3
2014	402	6	6	5.3
2015	271	3	3	4.7
2016	665	3	3.2	4.1
2017	476	10	10	5.4
2018	780	9	9	7.4

Table C-11 Continued

Year	Reading Maximum	Number of Daily Exceedances	Expected Exceedance Rate	3 Year Average of the Expected Exceedance Rate
2019	152	0	0	6.3
Riverside (HiVol)				
2003[b,i]	100.7	0	0	N/A
2004	34.4	0	0	N/A
2005	35.2	0	0	0
2006	82.7	0	0	0
2007	65	0	0	0
2008	52	0	0	0
2009	51	0	0	0
2010[r]	47	0	0	0
Stanfield County Complex (HiVol)				
1999	106.6	0	0	0
2000	148.7	0	0	0
2001	134.2	0	0	0
2002[b]	351.5	2	13	4
2003[b]	170.5	1	6.1	6.1
2004	80.9	0	0	6.1
2005	172.5	1	5.8	4
Stanfield County Complex (47mm)				
2006[m]	182	2	13.1	Avg. > 1.0
2007	374	6	39.6	Avg. > 1.0
2008	201	2	11.8	21.5
2009[p]	121	0	0	17.1
Stanfield County Complex (TEOM)				
2006[b,n]	727.4	25	26.5	Avg. > 1.0
2007	1062	25	25.2	Avg. > 1.0
2008	375	14	14	21.9
2009	815	14	14	17.7
2010	205	1	1	9.7
2011	586	23	23	12.7
2012	343	12	12	12
2013	913	17	17	17.3
2014	343	9	9	12.7
2015	243	1	1	9.0
2016	410	14	14	8.2
2017	328	13	13.1	9.6
2018	1100	15	15.1	14.3
2019	183	1	1	9.7

Footnotes:
a - At least one data point during this year was flagged due to a natural event and excluded from calculation.
b - At least one quarter during this year had less than 75% data recovery
f - Monitoring began at the Pinal County Housing Complex site on 08/01/2002. The Pinal County Housing Complex site replaced the Eleven Mile Corner site.
g - The Apache Junction Maintenance Yard South monitor was discontinued on 07/01/2003, and relocated to Apache Junction Fire Station.
h - Monitoring began at the Apache Junction Fire Station site on 07/02/2003.
i - Monitoring began at the Riverside site on 03/10/2003.
j - The Apache Junction Maintenance Yard North monitor was discontinued on 01/01/2004, and relocated to Pinal County Housing Complex.
k - 47mm filter-based monitoring began at the Cowtown Road site on 08/14/2005, and data reporting began as of 10/01/2005.
l - Monitoring began at the City of Maricopa County Complex site on 12/04/2004, and data reporting began as of 01/01/2005.
m - The Wedding HiVol monitor was replaced on 04/12/2006 with an Andersen RAAS10-100 monitor at the Stanfield County Complex site.
n - Beginning in February 2006 the R&P TEOM 1400a monitor was installed at the Stanfield County Complex site.
o – On 03/02/2007 the Andersen HiVol was relocated from a City of Eloy building to a Pinal County building approximately 650 feet to the north-northeast.
p – Filter-based monitoring was discontinued at Stanfield County Complex on 01/01/2010
q – Filter-based monitoring was discontinued at Casa Grande Downtown on 01/01/2010
r – Riverside and Mammoth sites were discontinued on 05/15/2011
s – Continuous PM10 monitoring began at Apache Junction Fire Station on 08/20/2012
t – HiVol monitor was replaced on 07/01/2013 with medium-volume monitor
u – Apache Junction Fire Station TEOM was discontinued on 07/01/2013; restarted on 01/01/2015
v – Pinal County Housing Complex HiVols were discontinued on 07/01/2014
w - Filter-based monitoring was discontinued at Pinal Air Park on 01/01/2015
x – TEOM installed at Eloy site in response to filter-based exceedance. TEOM started operation on 04/01/2016
y – Hidden Valley site is a relocation of the Cowtown site
z – Cowtown Road site was relocated to the Hidden Valley site. Cowtown Road was closed on 12/31/2015

24 Hour $PM_{2.5}$ Averages (in $\mu g/m^3$)

Table C-12

Year	Maximum Reading	98th Percentile	3 year average of the 98th percentile
Apache Junction Fire Station			
1999	18.7	15.5	N/A
2000	44.5	18	N/A
2001	14	13.1	16
2002	23.5	13.1	15
2003[a]	38	21.1	16
2004	17	10.3	15
2005	12.7	10.6	14
2006	10.7	9.3	10
2007	15.9	14.6	12
2008	23.3	15.4	13
2009	14.6	13.1	14
2010	13.1	11.9	14
2011	67.2	41.9	22
2012	21.1	14	23
2013	14.3	12.6	23
2014	22.2	11.8	12
2015	11.3	8.9	11
2016	14.6	11.8	11
2017	15.1	12.8	11
2018	34.4	11.2	12
2019	8.1	7.6	11
Casa Grande Downtown (South)			
1999	19.5	18.1	N/A
2000	22.2	18.9	N/A
2001	18.1	16.7	18
2002	23.5	20.8	19
2003	32.2	26.7	21
2004	16.6	13.7	20
2005	19.3	16.9	19
2006	16.1	15.4	15
2007	26.6	22.4	18
2008	23.5	22	20
2009	29	17.3	21
2010	25.4	21.4	20
2011	31.1	22.3	20
2012	20.9	18.5	21
2013	17.6	16.6	19
2014	17.5	16.8	17
2015	21.3	15.5	16
2016	33.7	18.5	17
2017	21.6	20.8	18
2018	45.0	20.5	20
2019	16.3	14.1	19

Table C-12 Continued

Year	Maximum Reading	98th Percentile	3 year average of the 98th percentile
Casa Grande Downtown (North)[c]			
2009	28.9	19	N/A
2010	22.1	21.3	N/A
2011	28.7	23.2	21
2012	18.8	17	24
2013	18	16.3	19
2014[e]	17.1	12.8	15.4
Casa Grande Downtown (BAM)			
2015	21	16.8	N/A
2016	20.6	18.5	N/A
2017	34.7	25.6	20
2018	43.9	24.5	23
2019	19.7	13.7	21
Cowtown Road (West) – Primary			
2005[a,b]	144.8	78.9	N/A
2006	69.4	48.9	N/A
2007	59.7	53.9	61
2008	41.7	40.7	48
2009	29.4	24	40
2010	39.5	27.1	31
2011	41.2	27.2	26
2012	32.6	28.3	28
2013	43.5	41.7	32
2014[d]	54.2	36.8	36
2015	27.1	22.6	34
Cowtown Road (East) – Collocated			
2015[e]	27.5	24.6	N/A
Hidden Valley (South) – Primary			
2016[f]	64.5	35.6	32
2017[g]	38.6	36.1	31
2018	53.9	34.4	35
2019	36.8	30.4	34
Hidden Valley (North) – Collocated			
2016[f]	62.5	40.1	N/A
2017[g]	33.6	32.1	32
2018	30	28.4	34
2019	46.4	32.5	31
Hidden Valley (BAM)			
2016[f]	46.2	34.0	N/A
2017	57.5	38.5	N/A
2018	68.5	41.7	38
2019	36.8	31.1	37

Footnotes:

a – At least one quarter during this year had less than 75% data recovery

b - 47mm filter-based $PM_{2.5}$ monitoring began at the Cowtown Road site on August 14, 2005 and data reporting began October 10, 2005.

c – Beginning January 1, 2009 a second $PM_{2.5}$ monitor, Casa Grande Downtown North, began sampling on the same day as Casa Grande Downtown South to collect precision data on a 1-in-6 day schedule.
d – Beginning August, 2014 two 2025 $PM_{2.5}$ monitors were installed and operated as collocated monitors
e – The $PM_{2.5}$ collocation site was moved to the Cowtown Road site on 01/01/2015
f – Hidden Valley is a relocation of the Cowtown site. The 3 year average listed is and average of 2014, 2015 from Cowtown Road and 2016 at Hidden Valley
g – Hidden Valley is a relocation of the Cowtown site. The 3 year average listed is and average of 2015 from Cowtown Road and 2016 and 2017 at Hidden Valley

Annual $PM_{2.5}$ Averages (in $\mu g/m^3$)

Table C-13

Year	Annual Average	3 year average of the annual averages
Apache Junction Fire Station		
1999	7.4	N/A
2000	7.3	N/A
2001	6.3	7
2002	6.4	6.6
2003[a]	6.3	6.3
2004[a]	5.5	6.1
2005	5.5	5.8
2006	5.3	5.4
2007	7	5.9
2008	7.5	6.6
2009	6.4	7
2010	5.9	6.6
2011	8.3	6.8
2012	7.1	7.1
2013	5.4	6.9
2014	5.9	6.1
2015	4.9	5.4
2016	5.2	5.3
2017	5.5	5.2
2018	5.4	5.4
2019	4.2	5.0
Casa Grande Downtown (South)		
1999	9.5	N/A
2000	8.5	N/A
2001	7.7	8.5
2002	8.5	8.2
2003	8.4	8.2
2004	7.1	8
2005	7.3	7.6
2006	7.6	7.3
2007	10.3	8.4
2008	10.6	9.5
2009	9.7	10.2
2010	8.4	9.5
2011	10	9.3
2012	9.9	9.4
2013	8.1	9.3
2014	7.7	8.6
2015	6.8	7.5
2016	8.6	7.7
2017	9.1	8.2
2018	8.7	8.8
2019	6.9	8.2
Casa Grande Downtown (North)[c]		
2009	9.6	N/A
2010	8.2	N/A
2011	9.5	6.1

Table C-13 Continued

Year	Annual Average	3 year average of the annual averages
2012	9.0	8.9
2013	7.9	8.8
2014[e]	7.5	8.1
Casa Grande Downtown (BAM)		
2015	7.8	N/A
2016	8.9	N/A
2017	10.1	8.9
2018	8.5	9.2
2019	6.0	8.2
Cowtown Road (West) – Primary		
2005[a,b,d]	33.1	N/A
2006[d]	22.7	N/A
2007[d]	22.5	26
2008[d]	19.6	21.6
2009[d]	14.2	18.8
2010[d]	12.4	15.4
2011[d]	13.2	13.2
2012[d]	14.8	13.3
2013[d]	14.9	14.3
2014[d]	13.5	14.4
2015[d]	10.1	12.8
Cowtown Road (East) – Collocated		
2015[e]	9.7	N/A
Hidden Valley (South) – Primary		
2016[f]	14.0	12.5
2017[g]	15.7	13.3
2018	12.4	14.0
2019	11.4	13.2
Hidden Valley (North) – Collocated		
2016[f]	13.6	N/A
2017[g]	14.3	12.5
2018	12.7	13.5
2019	11.3	12.8
Hidden Valley (BAM)		
2016[f]	11.3	N/A
2017[g]	14.4	N/A
2018	11.9	12.5
2019	10.6	12.3

Footnotes:

a - At least one quarter during this year had less than 75% data recovery

b - 47mm $PM_{2.5}$ filter-based monitoring began at the Cowtown Road site on August 14, 2005 and data reporting began October 10, 2005.

c – Beginning January 1, 2009 a second $PM_{2.5}$ monitor, Casa Grande Downtown North, began sampling on the same day as Casa Grande Downtown South to collect precision data on a 1-in-6 day schedule.

d – The Cowtown Road site is not comparable to the $PM_{2.5}$ annual standard. Annual averages are listed here for trend analysis.

e – The $PM_{2.5}$ collocation site was moved to the Cowtown Road site on 01/01/2015

f – Hidden Valley is a relocation of the Cowtown site. The 3 year average listed is and average of 2014, 2015 from Cowtown Road and 2016 at Hidden Valley

g – Hidden Valley is a relocation of the Cowtown site. The 3 year average listed is and average of 2015 from Cowtown Road and 2016 and 2017 at Hidden Valley

Appendix D

EPA Approval Letters

Appendix E

Public Comments

This appendix summarizes the public comment period and hearing conducted in relation to this document.

E.1 Public Comment Period

Pinal County Air Quality posted the draft 2020 Ambient Monitoring Network Plan and 2019 Data Summary on the department's website for the period starting May 20, 2020 through June 19, 2020. During this time period the document was also be available for review at the Pinal County Air Quality offices located at 31 North Pinal Street, Building F, Florence, Arizona. Public comments were due to Pinal County no later than close of business on June 19, 2020.

PUBLIC NOTICE OF AMBIENT MONITORING NETWORK PLAN

PUBLIC COMMENT PERIOD AND PUBLIC HEARING

Pursuant to 40 Code of Federal Regulations (CFR) §58.10 Pinal County Air Quality will make its annual monitoring network plan available for public inspection for 30 days prior to submission to the United States Environmental Protection Agency. The Annual Ambient Monitoring Network Review and Data Summary present changes to and data collected from the air quality monitoring network. The document will be posted at http://www.pinalcountyaz.gov/AirQuality/Pages/MonitoringNetworkPublicNotice.aspx for thirty days beginning May 20, 2020. During this time period the document will also be available for review at the Pinal County Air Quality offices located at 31 North Pinal Street, Building F, Florence, Arizona from 8:00 AM to 4:30 PM, Monday thru Friday. Additionally, a public hearing will be held June 08, 2020 at 9:00 AM at 31 North Pinal Street, Building F, Ocotillo Room, Florence, Arizona. This public hearing can be attended virtually (web address: meet.google.com/hdy-yixu-exw) or by phone (262-631-3220, PIN: 857 698 756#)

Public comments may be submitted in writing to Pinal County Air Quality, Attention: Josh DeZeeuw, P.O. Box 987, Florence, Arizona, 85132, or comments may be given orally at the scheduled public hearing on June 08, 2020. Written or oral public comments are due before the close of business on June 19, 2020. Additional information is available by calling 520-866-6929.

PINAL COUNTY
WIDE OPEN OPPORTUNITY

PINAL COUNTY DEPARTMENT OF DEVELOPMENT SERVICES
AIR QUALITY CONTROL DISTRICT
POST OFFICE BOX 987, FLORENCE, ARIZONA 85132

2020 ANNUAL MONITORING NETWORK PLAN PUBLIC MEETING SIGN-IN SHEET
JUNE 08, 2020

Name	Organization	Address	Phone Number	Email
Josh DeZeeuw	PAQCD	31 N. Pinal St. Florence	520-866-6953	joshua.dezeeuw@pinal.gov
Mike Sundblom	PAQCD	31 N. Pinal St. Fl	520-866-6915	michael.sundblom@pinal.gov

E.3 Public Comment

None received